ATTITUDES OF KEY ORGANIZATION LEADERS TOWARD DEER AND DEER MANAGEMENT IN NORTHERN NEW YORK

BY

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Fishery Science
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October 29, 1985

Mr. Eugene Parks
Bureau of Wildlife
NYS DEC
50 Wolf Road
Albany, NY 12233

Dear Gene:

Enclosed please find two copies (one bound and one looseleaf) of Volume 1 of the final report for Job 6, Study VIII, entitled "Attitudes of Key Organization Leaders Toward Deer and Deer Management in Northern New York". I have sent one copy to each of our regional contacts (i.e., Stumvoll, Smith and Gotie) and two copies to George Mattfeld (one for his use and one for him to deposit at Delmar for Gene McCaffrey, Nate Dickinson, etc.). If you have other distribution needs, please use the looseleaf copy to make additional copies; we have no extras.

Because of our desire to provide you with the report as quickly as possible, and in view of some temporary typing difficulties we are experiencing, we will be sending it to you in two volumes. Volume 1 (which is enclosed) contains the Executive Summary, the text, and the text figures and tables, Volume 2 contains the appendices and will be sent to you as soon as it is ready. I hope that this does not cause an inconvenience.

In the near future we will be preparing a short summary of the results of the study to send to those organization leaders who requested a copy. We will submit a draft of the summary for your review. Perhaps it would be a good idea (from an image standpoint) to send a copy to each of the organizations that contributed to the survey.

If you have any questions regarding the report, please contact us.

Sincerely,

Bob Smolka

Robert Smolka
Research Support Specialist
Natural Resources

cc: Stu Free (letter)
George Mattfeld (letter and 2 reports)
Randy Stumvoll (letter and report)
Ted Smith (letter and report)
Bob Gotie (letter and report)
Tommy Brown (letter and report)
Dan Decker (letter and report)

FINAL REPORT

STATE: New York PROJECT NUMBER: W-146-R-10

PROJECT TITLE: Public Attitudes Toward Wildlife and Its Accessibility

STUDY NUMBER AND TITLE: VIII - Identifying Attitudes and Values Toward Species and Their Management

JOB NUMBER AND TITLE: VIII-6 - Implementation of a Survey of Attitudes of Key Public Leadership Toward Deer Management Alternatives for Northern New York

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EXECUTIVE SUMMARY

BACKGROUND

This report presents the findings of the second in a 4-part series of studies specified by the New York State Department of Environmental Conservation (DEC) in the Northern New York Strategic Plan for Deer Management. The plan establishes the direction that DEC will take in managing the deer resource in the Northern Zone (NZ) of New York. The goal of the management program is to provide diversified recreational use of white-tailed deer in the 3 NZ deer ranges (Agricultural, Transitional, and Central) consistent with long-term ecological stability and social constraints.

Although potentially effective deer management programs are developed in the plan, history shows that public acceptance and support are essential for program implementation and success. That such support does not yet exist was highlighted by the first study in this series (Decker et al. 1983, Smolka et al. 1983), which determined the acceptability among NZ deer hunters of authorizing DEC to use various deer harvest approaches in the NZ, including the harvest of antlerless deer in some areas. The purpose of this study was to provide information on the attitudes toward deer and deer management held by leaders or officials of organizations representing a breadth of interest in deer management in the NZ.

METHODS

Survey Design

The list of organizations to be surveyed was generated by Bureau of Wildlife (DEC) and Project 146 staff. The main criterion for selection was that the organizations have an interest in deer management in the NZ of New York. A total of 409 organizations were selected for inclusion in the study. Each organization was placed into 1 of 20 categories based upon common functions, purposes, or other important characteristics (Fig. ES-1). Questionnaires were sent to individuals holding elected or appointed positions within the organizations.

Specific data needs associated with the study objectives were identified and defined by DEC and Project 146 staff. Our standard mailing procedure which uses 4 mailings permitting up to 3 follow-up contacts with nonrespondents was followed.

ORGANIZATION CATEGORIES	
1	NZ agricultural groups
2	NYS agricultural groups
3	NZ timber companies
4	NYS, NZ forestry boards, associations, etc.
5	NZ newspapers
6	NZ radio stations
7	NYS, NZ sports writers and magazines
8	NZ business representatives
9	NZ civic groups
10	NZ town supervisors and county supervisors/legislators
11	NZ state legislators
12	NZ private conservation groups
13	National, NYS private conservation groups
14	NZ regional planning boards, councils
15	NZ SCS, ASCS offices
16	NYS public agencies
17	NZ Sportsmen Training Program county coordinators
18	NYS sportsmen's groups
19	NZ sportsmen's clubs
20	NYS Conservation Council, NZ county federations of sportsmen's clubs

Figure ES-1. Organization categories.

Survey Response

The initial sample size of 409 resulted in 287 returned questionnaires, for an overall response rate of 70.2 percent. Of these, 280 were returned codeable, producing a 68.5 percent usable return.

Wildlife Management Communication Planning Model

A wildlife management communication planning model has been developed to outline the process an agency might follow to determine public opinions about a proposed management program. This information can then be used to develop a communication strategy first for treating opposition to the proposal, if such exists, and second for generating continued public support for the program once it has been accepted. This model is a refinement of the communication strategy developed from the study of NZ deer hunters. The model (Fig. ES-2) assumes that public opinions of a proposed management program are influenced primarily by 2 factors: their beliefs about the management issue(s) and their image of the agency.

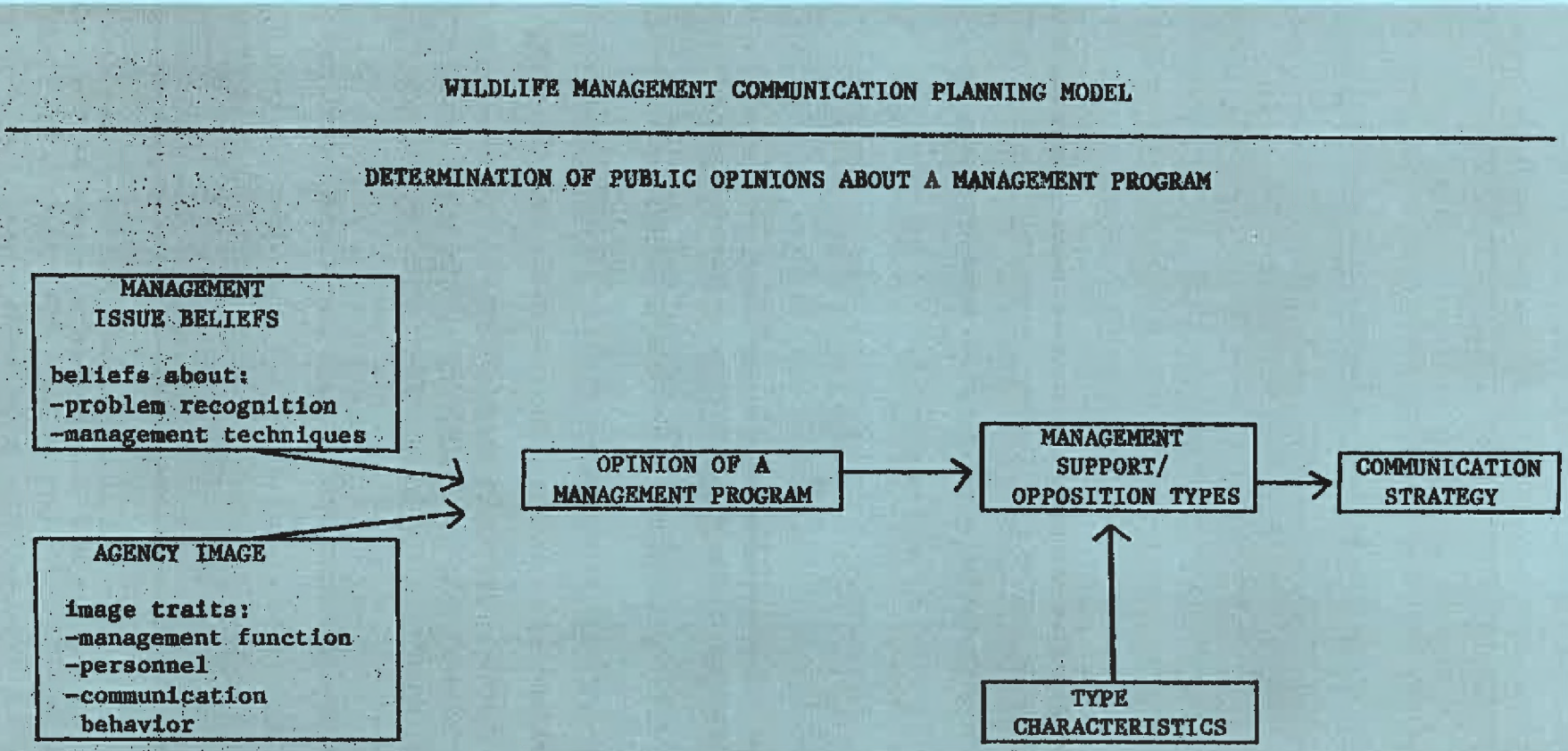

Figure ES-2. Wildlife management communication planning model.

Beliefs about a management issue

Often, an agency will propose a management program to resolve a perceived problem, typically specifying 1 or more management techniques that the agency anticipates will best solve the problem. Sometimes there is nearly unanimous support for the program among key publics. Frequently, however, there is substantial opposition, resulting in the emergence of a management issue.

Two categories of beliefs that key publics may hold about such an issue should be identified by an agency prior to proposing a program. First, the agency should determine whether the existence of the problem is perceived accurately by key publics. This is important because public support for a management program to alleviate a problem must be preceded by public perception of the problem. The agency should endeavor to create problem recognition when it does not exist and reinforce recognition when it does.

Second, the agency should determine whether those who recognize the problem support or oppose the management technique proposed by the agency to solve the problem. The next step in gaining public approval for the proposed management program would be to create support for the management technique when it does not exist and reinforce support when it does.

To provide insight on management issue beliefs of concern in the 3 deer ranges of the NZ, organization leaders answered a set of generic questions pertaining to such issues. The first question in the set inquired whether the respondent recognized the existence of the deer population or habitat problem in that area: an underpopulation of deer in agricultural areas (representing the Agricultural range), the occurrence of habitat and commercial forest damage caused by overbrowsing in easy access, privately owned forested areas (representing the Transitional range), and an underutilized deer population in remote areas such as the central Adirondacks and Tug Hill Plateau (representing the Central range). The second question in the set, answered by respondents who recognized the existence of a problem, solicited their beliefs about the appropriateness of antlerless deer harvests as a management technique for treating the problem. (Because of the situation in the Agricultural range, respondents were asked whether antlerless deer harvests should be used to control the level of any agricultural damage that might occur once the deer population had increased.)

Agency image

Agency image is the second factor influencing public opinion of a proposed management program. Whereas the publics' management issue beliefs reflect their beliefs about specific components of the proposed management program, the publics' image of the agency creates the broader context in which opinions of the management program are formulated. It may be difficult to gain approval for a management program until a favorable agency image is established. Decker (1985) states that agency image consists of 3 traits: (1) image of the agency's management function, (2) image of the agency's personnel, and (3) image of the agency's public communication behavior. In this study, organization leaders responded to several standard statements (i.e., used in several studies previously) regarding their image of these 3 aspects of the DEC's NZ deer management program.

Opinions of a proposed management program

Leaders' probable support for the proposed management program can be derived from their issue beliefs and agency image. However, this becomes complicated when opinions are based upon more than 1 set of issue beliefs. When this occurs, a more direct way to determine opinions of the proposed program is to seek opinions of themes that encompass all issue beliefs or agency image components. Two such themes were identified and explored in this study: (1) opinions of the appropriate level of DEC deer management authority throughout the NZ, which are heavily influenced by the public's image of the DEC, and (2) opinions of the use of antlerless deer harvests in the NZ, the management technique common to each issue.

Opinions of the agency's proposed management program will usually cover the range from full support to full opposition. It is important to differentiate various levels of support so that communication can be developed accordingly. Levels of support for DEC's stance on the proposed deer management program in the NZ were created through the use of a Management Acceptance Typology. This analysis method places organizations into a typology group, or type, based upon their leaders' responses to 3 hierarchically-ordered questions involving opinions of the 2 themes identified in the previous paragraph.

Four levels of support for the proposed program were identified conceptually, hence 4 types were created. Ninety-three percent of the

organizations were typed. The Full Support and Conditional Support types would extend to DEC greater deer management authority in the NZ; the Full Support type would approve of antlerless deer harvests in the NZ, while the Conditional Support type would approve of such harvests only under certain conditions. The Qualified Opposition type would oppose either extending to DEC further deer management authority in general or the use of antlerless deer harvests in the NZ specifically; however, a leader in this type was not opposed to both. The Full Opposition type would oppose both the general expansion of authority and the specific use of antlerless deer harvests.

Information regarding characteristics of each type that will be needed for developing communication messages will vary depending on the management program being considered, but should at least include: (1) basic wildlife attitudes, values, and interests, (2) suggestions from those not in full support of the agency regarding conditions under which their support could be expected, and (3) channels for communicating with and obtaining feedback from the public.

Changing public opinions (or the opinions of a typology group) of the proposed management program will necessitate developing public issue beliefs consistent with those underlying the program and/or improving the public's image of the agency. If the existence of a management problem is not recognized by the public, an educational program will be required to inform the public that the problem exists. If the problem is recognized by the public but the management technique is opposed, an educational program will be needed to convince the public of the viability of the technique; educational communication also will be needed to reinforce beliefs about the existence of the problem. If the problem is recognized and the management technique is favored, the emphasis will be on communication that reinforces both of these issue beliefs. Likewise, an agency image component must be improved if it is poor and reinforced if it is good. In many instances, the act of communicating with the public regarding issue beliefs, if done well, will improve components of agency image at the same time.

RESULTS

Description of the Northern Zone Deer Management Situation

Issue beliefs

The data indicate that beliefs about the existence of a problem and the appropriateness of antlerless deer harvests in a particular range vary considerable between ranges (Table ES-1). Nearly 3/4 of the organization leaders believed that the deer population in some parts of the Agricultural range should be allowed to increase (i.e., they recognized the problem). If the population grew sufficiently large to warrant herd control, about 1/2 would favor antlerless deer harvests to effect control (i.e., favor the management technique). On the other hand, over 3/4 of respondents did not believe that overbrowsing by deer was a problem in the Transitional range. Beliefs concerning the potential for the deer herd in the Central range to provide more hunting opportunities were more evenly divided, with slightly less than 3/5 believing that the herd could be managed to provide such opportunities. Those who concurred with DEC's premise were slightly more likely to not favor vs. favor the use of antlerless deer harvests as a way to increase opportunities. Few leaders who recognized the existence of a problem had no opinion of the use of antlerless deer harvests to deal with it, indicating the saliency of the antlerless deer harvest controversy.

TABLE ES-1. ORGANIZATION LEADERS' ISSUE BELIEFS, BY DEER RANGES.

Issue Beliefs	Agricultural Range	Transitional Range	Central Range
		Percent	
Do not believe problem exists	15.3	57.9	20.2
Do not know whether problem exists	11.9	20.4	22.6
Believe problem exists; oppose technique	24.3	2.5	28.4
Believe problem exists; no opinion of technique	2.6	1.7	4.1
Believe problem exists; favor technique	45.9	17.5	24.7
Total: Percent	100.0	100.0	100.0
Number	235	240	243

Agency image

Organization leaders' perceptions of DEC's management function and personnel were more positive than negative, although sizeable proportions have not formed an image of these 2 traits (Table ES-2). On the other hand, their perception of DEC's public communication behavior was more negative than positive. The image of this trait may be limiting DEC's achievement of an overall positive image.

TABLE ES-2. ORGANIZATION LEADERS' IMAGE OF TRAITS PERTAINING TO DEC'S NORTHERN ZONE DEER MANAGEMENT PROGRAM.

Agency Image	Image Traits		
	Management Function	Personnel	Communications Behavior
	Percent		
Positive	51.1	44.7	26.2
Neutral	28.9	35.4	19.2
Negative	20.0	19.9	54.6
Total: Percent	100.0	100.0	100.0
Number	234	241	242

Opinions of the management program themes

Organization leaders were evenly divided over the levels of deer management authority they thought DEC wildlife biologists should have in the NZ, with 3/5 believing that this authority should be expanded to some degree. Nearly 3/4 favored using antlerless deer harvests in the NZ either unconditionally or in certain situations. This substantial, though not overwhelming, degree of support for DEC's management program was reflected by the distribution of organization leaders in the Management Acceptance Typology; slightly more than 1/2 of the leaders were in the Full (27%) or Conditional Support (30%) types vs. the Qualified (24%) and Full (19%) Oppoaition types.

Type Characteristics

Issue beliefs

If the wildlife management communication planning model is valid, issue beliefs should vary for each typology group. Relationships do exist, although they vary somewhat by range. The only relationship common to all ranges was that as the typology went from Full Support to Full Opposition, the proportion of leaders within a type who recognized the existence of a problem and favored the use of antlerless harvests became smaller (Table ES-3).

The vast majority of leaders of each type recognized that the deer population in the Agricultural range should be allowed to increase. Of those who were knowledgable, the majority of all but the Full Opposition type favored the subsequent use of antlerless deer harvests to control potential overpopulation in this range.

In the Transitional and Central ranges, the proportion of leaders within a type who did not believe the problem identified by DEC for the range exists becomes greater as the typology goes from Full Support to Full Opposition. As a result, opposition to antlerless deer harvests in the Central range was expressed more frequently by the Conditional Support and Qualified Opposition types than by the Full Opposition type.

Agency image

A relationship between agency image and support for the proposed management program was evident in Table ES-4. For each agency image trait, the proportion of leaders within a type who had positive perceptions of the trait became smaller as the typology went from Full Support to Full Opposition and the opposite was true for those with negative perceptions.

The 2 Support types and the Qualified Opposition type had a more positive than negative perception of the DEC's management function and personnel; the Full Opposition type was more negative than positive. DEC's communication behavior, on the other hand, was viewed more negatively than positively by each type, except for the Full Support type which was evenly divided in opinion. All types were slightly less likely to have an opinion of the personnel trait vs. the other 2 traits; generally, the communication behavior trait received the fewest "no opinion" responses.

TABLE ES-3. ORGANIZATION LEADERS' ISSUE BELIEFS FOR EACH DEER RANGE, BY MANAGEMENT ACCEPTANCE TYPOLOGY.

Deer Range/ Issue Beliefs	Full Support	Conditional Support	Qualified Opposition	Full Opposition
	Percent			
Agricultural range				
Do not believe problem exists	12.9	12.7	25.4	9.3
Do not know whether problem exists	12.9	14.1	8.5	11.6
Believe problem exists; oppose technique	0.0	18.3	23.7	69.7
Believe problem exists; no opinion of technique	0.0	1.4	5.1	4.7
Believe problem exists; favor technique	74.2	53.5	37.3	4.7
Total: Percent	100.0	100.0	100.0	100.0
Number	62	71	59	43
Transitional range				
Do not believe problem exists	30.2	53.5	71.2	86.7
Do not know whether problem exists	28.6	20.5	20.3	8.9
Believe problem exists; oppose technique	0.0	2.7	3.4	4.4
Believe problem exists; no opinion of technique	1.6	4.1	0.0	0.0
Believe problem exists; favor technique	39.6	19.2	5.1	0.0
Total: Percent	100.0	100.0	100.0	100.0
Number	63	73	59	45
Central range				
Do not believe problem exists	3.0	15.1	26.7	45.5
Do not know whether problem exists	22.7	19.2	20.0	31.8
Believe problem exists; oppose technique	6.1	42.5	40.0	22.7
Believe problem exists; no opinion of technique	7.6	6.8	0.0	0.0
Believe problem exists; favor technique	60.6	16.4	13.3	0.0
Total: Percent	100.0	100.0	100.0	100.0
Number	66	73	60	44

TABLE ES-4. ORGANIZATION LEADERS' IMAGE OF TRAITS PERTAINING TO DEC'S NORTHERN ZONE DEER MANAGEMENT PROGRAM, BY MANAGEMENT ACCEPTANCE TYPOLOGY.

Image Traits	Full Support	Conditional Support	Qualified Opposition	Full Opposition
	Percent			
Management function				
Positive	74.7	53.5	40.7	25.9
Neutral	19.1	30.9	36.8	30.0
Negative	6.2	15.6	22.5	44.1
Total: Percent	100.0	100.0	100.0	100.0
Number	65	68	57	44
Personnel				
Positive	65.6	47.2	33.3	24.0
Neutral	25.8	37.5	46.1	31.8
Negative	8.6	15.3	20.6	44.2
Total: Percent	100.0	100.0	100.0	100.0
Number	66	72	60	43
Communications behavior				
Positive	37.9	27.5	21.7	13.3
Neutral	24.2	21.1	19.2	8.9
Negative	37.9	51.4	59.1	77.8
Total: Percent	100.0	100.0	100.0	100.0
Number	66	71	60	45

Beliefs about deer and wildlife

An important characteristic of publics that should be understood is their beliefs about wildlife. Organization leaders responded to a set of statements that covered 3 dimensions of beliefs (for wildlife in general and deer in particular) identified by Purdy et al. (1984): (1) nonconsumptive/noneconomic-use beliefs, (2) consumptive/economic-use beliefs, and (3) problem-tolerance beliefs.

The beliefs of the 4 types were remarkably similar; furthermore, there was little difference between beliefs regarding deer and corresponding beliefs regarding wildlife in general. The noneconomic/nonconsumptive dimension was most highly rated and the economic/consumptive dimension was almost as highly rated. Organization leaders demonstrated a high degree of tolerance for problems caused by deer or wildlife; the Full Opposition type was somewhat more tolerant of deer damage or nuisance problems than the other types.

Preconditions to support

Suggestions concerning limits to DEC authority, conditions under which antlerless deer harvests would be acceptable, and acceptable approaches to deer management were solicited from organization leaders who (1) believed that the DEC should have more deer management authority in the NZ, but that this authority should be limited, and/or (2) favored antlerless deer harvests in the NZ only under certain conditions. Many leaders believed that management decisions should not be made unilaterally by DEC; instead, they advocated public involvement in such matters (which is the approach DEC is following via the NZ deer management plan). Some thought that limited trials of antlerless deer harvest authority would be appropriate.

The most-frequently-cited precondition to acceptance of antlerless deer hunting involved the existence of an overpopulation of deer. (The fact that DEC has tried unsuccessfully to convince the public of an overpopulation problem in some areas may be due, in part, to a demonstrated tolerance of any deer damage that may be occurring now, and, in part, to the DEC's current image, particularly among the least supportive leaders.) Other preconditions included an assurance of adequate enforcement of game laws, the simultaneous expansion of habitat improvement activities, or limiting antlerless deer harvest to NZ landowners or residents only. Favored harvest methods included a "doe day", one deer-of-either-sex per season, or allowing the taking of one deer with a primitive weapon and one deer on the regular license. There was considerable agreement that the issuance of quotas of antlerless deer management permits should not be used because of the perceived ease of associated game law violations.

Communication channels

A communication program must ensure that the message is received by the target audiences and that the agency receives feedback from them. Consequently, information about communication channels is needed for communication planning. About 70 percent of organization leaders in the Full Support, Conditional Support, and Qualified Opposition types would prefer that their organization receive deer management information through newsletters, direct mailings, or other documents from DEC. In addition to these channels, the Full Opposition type would like to receive information through personal contact with DEC central or regional office staff, either by phone, letter, or

personal visits. Majorities of all types also indicated that these are the channels through which they would prefer to receive information.

Organization leaders would like to use a variety of channels to communicate their opinions about DEC's deer management efforts to the agency. For the most part, these involve personal contact with DEC staff. Organization leaders' ratings of the perceived effectiveness of these channels in making their organizations' opinions known to DEC decreased as the typology goes from Full Support to Full Opposition. It is noteworthy that one of the most-frequently-used ways of communicating by all typology groups, and one of the most effective in the opinion of all but the Full Support type, occurred indirectly through contact with sportsmen's organizations.

IMPLICATIONS FOR COMMUNICATION

Communication Considerations: Agricultural Range

DEC's proposed deer management program could encounter its greatest acceptance in the Agricultural range. Furthermore, public discussions concerning a management action in this range could begin with little more public preparation. Most organization leaders believed that the deer population in some easy access, agricultural areas should be allowed to increase and many would also favor the use of antlerless deer harvests if population control were eventually warranted. Although most leaders desired a population increase there, prior to managing for an increase, DEC may need greater assurance of having public support for the means of eventually controlling the population. Therefore, 2 communication program objectives for this range might be: (1) to establish problem recognition where it does not currently exist, creating support for antlerless deer harvest simultaneously; and (2) to create support for antlerless deer harvest where the problem is recognized but antlerless deer harvest is opposed.

The first step in designing a communication program to meet these objectives would be to determine leaders' reasons for nonrecognition of the problem or opposition to the management technique. There are a few possible explanations for lack of recognition. First, some leaders may not realize that certain parts of the range are underpopulated, necessitating the dissemination of biological information. Second, there may not be an underpopulation of deer in particular agricultural areas familiar to some leaders. Third, some leaders may realize that the deer population is low in certain areas, but not favor an

increase in the herd. This desire may be due to a concern about a possible concomitant rise in deer damage. In fact, those who do not know whether the population should be increased are somewhat less tolerant of deer damage than those with other issue beliefs. Three of the five organizations in the NZ Agriculture category (excluding maple producers) that are active wholely or partly in the Agricultural range either oppose or do not know whether the deer population in this range should be increased.

Those who do not recognize the problem might be receptive to messages stressing the amenity values resulting from a larger deer herd, based on their positive nonextractive/noneconomic-use beliefs. In addition, the potential for increased hunting opportunities could be mentioned, as these leaders also have positive extractive/economic-use beliefs.

Those who think that the deer population in the Agricultural range should be increased but oppose the use of antlerless deer harvests if herd control were needed would deny DEC an effective means of control. One-half of the leaders with this issue belief are in the Full Opposition type and thus may be reacting out of objection toward the idea of antlerless deer harvests in the NZ, noting that this objection is not expressed toward such harvests in the SZ. The other 2 types expressing this issue belief are Conditional Support and Qualified Opposition. Many of these leaders are willing to accept antlerless deer harvests in cases of overpopulation and therefore their beliefs may be more malleable. Nevertheless, these leaders should understand that the concerns of other organizations (e.g., agriculture) have to be addressed before management actions can be taken to increase the population.

Communication Considerations: Transitional Range

DEC's proposed deer management program may be furthest from realization in the Transitional range, given the preponderance of leaders who do not believe that the deer populations in some easy access, privately owned forested areas are damaging habitat and commercial forest regeneration because of heavy browsing. An objective of the communication program for this range would be to establish problem recognition. There is little sense in trying to create positive opinions toward the use of antlerless deer harvests to control habitat and commercial forest destruction in the Transitional range before such damage is recognized. In fact, it is impossible to predict what opinions of the use

of such harvests will be if recognition is established. If problem recognition is created, opinions of the management technique should be solicited from the public again.

There are several possible reasons why leaders do not recognize habitat and forest damage. First, leaders may not realize that it is occurring because they lack either information about the problem or the technical expertise to discern damage; educational communications would be required in this case. Another possibility is that leaders do not perceive the damage they do know about as being significant. That this is possible is evidenced by the fact that DEC has guided many people on field trips to witness damage done in winter yarding areas with apparently little success in creating widespread problem recognition. A further possibility is that damage is not occurring in the area with which leaders are familiar. The exact reasons for nonrecognition of the problem must be determined before a communication program can be developed.

A possible solution is to gain the assistance of respected and knowledgable members of the local public who recognize damage and are willing to communicate this to others. Large proportions of a few potentially influential organization categories recognized damage and favor antlerless deer harvests to control it. Nearly all of the organizations in the New York State Forestry Boards and Associations category recognized the problem, as did nearly 1/2 of the organizations in the NZ Timber Companies category. Gaining the cooperation of a timber company would have 2 benefits: the existence of an outside spokesman in favor of DEC's program and the possibility of using some portion of the timber company's landholding as a demonstration area to prove the viability of antlerless deer harvest by recreational hunters.

Two considerations should be kept in mind if the DEC decides to use demonstration areas. First, more than 1 demonstration area should be employed, if possible, to increase the overall probability that success occurs in at least 1 area. Second, every effort should be made to avoid a public relations controversy such as occurred over the Moose River Plains deer collection. This would entail public relations preparation prior to the demonstration and attention to public opinion during and after the hunt so that any adverse opinion that might arise could be dealt with in a timely and effective manner.

Communication Considerations: Central Range

Issue beliefs for the Central range differ from those existing in the other 2 ranges. The slight majority of leaders who recognized that the deer population in some remote areas such as the central Adirondacks and Tug Hill Plateau has the potential to provide more hunting opportunities should be increased before management actions are taken in this range. Then, DEC could begin to generate additional support for the management technique.

Success in reaching the first objective will depend on DEC determining leaders' (primarily Conditional Support and the Opposition Types) reasons for their beliefs and then addressing these reasons. DEC should continue to publicize their contention that hunting opportunities are now being missed and, if possible, attempt to increase the effectiveness of their messages.

After problem recognition is established, creating support for the use of antlerless deer harvests to provide increased hunting opportunities would be the next objective. Although beliefs about this use were divided, it is possible that once the Conditional Support and 2 Opposition types recognize the problem, their beliefs regarding the management technique (i.e., antlerless deer harvest) may be fairly negative. This conclusion is based on the assumption that their beliefs about this technique will be distributed between support and opposition approximately as they were at the time of our study (i.e., among those in these types who recognized the problem).

Fortunately, the relationship between problem recognition and opinion of the management technique for issue beliefs in the Agricultural and Transitional ranges differed from the relationship between these 2 issue belief components in the Central range. Dealing with the problem (i.e., overpopulation of deer) in the former ranges was dependent on the use of antlerless deer harvests to achieve population control. In the Central range, where population control is not essential, management techniques that are more acceptable to the public than antlerless deer harvest could be considered. Following implementation of these techniques and the achievement and communication of success in their use, DEC's credibility might improve to the point where trials of antlerless deer harvests would be acceptable.

CONCLUSIONS

Deer management initiatives in the NZ are most likely to be conducted either at the DMU level or, in the case of demonstration areas, at the sub-DMU level. Issue beliefs were such that the objectives and appropriate messages of a communication program to gain and maintain support for these initiatives will vary according to the range location of the DMU or sub-DMU area being considered. The extent of the communication challenge, while apparently less imposing in the Agricultural range than in the Transitional range, indicates the need for expert communication program planning, implementation, and monitoring.

A common thread connecting the various elements of the communication program is the need to establish a positive agency image. A note of optimism can be sounded in that a more positive than negative image of DEC's management function and personnel is held by leaders not totally opposed to the proposed deer management program. On the other hand, DEC will have to put forth a concerted effort to improve the public's image of its communication behavior.

Although a favorable agency image may make organization leaders more amenable to approving management initiatives, particularly the least controversial ones, there is no substitute for demonstrating actual program success. Gaining approval for a management technique in an area may hinge on prior establishment of management competence, either by successfully using the technique in other areas of the NZ or by successfully implementing other techniques in the same area. The combination of creating a positive agency image and demonstrating management competency should result in greater acceptability of a general expansion of DEC's NZ deer management authority.

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FINAL REPORT

STATE: New York
PROJECT NO.: W-146-R-10

PROJECT TITLE: Public Attitudes Toward Wildlife and Its Accessibility

STUDY NUMBER AND TITLE: VIII - Identifying Attitudes and Values Toward Species and Their Management

STUDY OBJECTIVE: To discern, specific to key public segregation, the attitudes held toward species traditionally associated with selected value or costs, the compatability and effectiveness of management of those species, and the public's satisfaction with the Bureau of Wildlife's efforts to manage those species.

JOB NUMBER AND TITLE: VIII-6 - Implementation of a Survey of Attitudes of Key Public Leadership Toward Deer Management Alternatives for Northern New York

JOB OBJECTIVE: To determine key public leadership attitudes toward deer and deer management alternatives in Northern New York as input for management program decisionmaking and development.

JOB DURATION: 1 April 1983-30 June 1985

ABSTRACT

The New York State Department of Environmental Conservation (DEC) is formulating a communication program to gain public support for white-tailed deer (Odocoileus virginianus) management in three Northern New York (NNY) deer ranges. Leaders of organizations representing a broad spectrum of interests in NNY deer management were surveyed via mail questionnaire to ascertain their opinions about deer management in the region. An initial sample size of 409 resulted in 287 returned questionnaires; 280 were codable, producing a 68.5 percent usable return. Data were incorporated into a wildlife management communication planning model. The model assumes that opinions toward a proposed management program are based on leaders' issue beliefs and image of the agency. Issue beliefs refer to beliefs concerning the existence of a management problem together with an opinion of the management technique proposed by the agency to deal with the problem. Agency image refers to the public's image of three traits of an agency: management function, personnel, and public communication behavior. Communication to influence issue beliefs and agency image should be developed for and directed at portions of the public expressing different levels of support for the agency's proposed management program. Organization leaders were categorized into management support/

opposition types based on their responses to several questions involving opinions of the proposed program. Full support of the DEC's proposed program was expressed by 27 percent of the leaders, 30 percent would support the program under certain conditions, 24 percent were opposed to the program, though not completely, and 19 percent expressed total opposition. Results of the study indicate that organization leaders' issue beliefs vary according to deer range and that their images of the agency's management function and personnel are fair to good, but their image of public communication behavior is poor. Most leaders (73 percent) believed that the deer population should be allowed to increase in the Agricultural range, and nearly one-half (46 percent) would favor the use of antlerless deer harvests if the population eventually became large enough to warrant control. Very few leaders (22 percent) believed that deer were damaging habitat and commercial forest regeneration in the Transitional range. Although over one-half (57 percent) of the leaders believed that the Central range had the potential to provide more hunting opportunities, only one-quarter felt that the use of antlerless deer harvests would be a good way to increase opportunities. The following information needed for developing communication messages was obtained for each type: wildlife attitudes and values, suggestions from those not in full support of the agency regarding conditions under which their support could be expected, and channels for communicating with and obtaining feedback from the public. The final product is a general communication strategy for generating public support for the agency's proposed management program in each deer range; included are identification of communication objectives, considerations for developing communication messages, and suggestions for message content.

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INTRODUCTION

Background

This report presents the findings of the second in a 4-part series of studies specified by the New York State Department of Environmental Conservation (DEC) in the Northern New York Strategic Plan for Deer Management. The plan establishes the direction that DEC will take in managing the deer resource in the Northern Zone (NZ) of New York. The goal of the management program is to provide diversified recreational use of white-tailed deer in the Deer Management Units (DMUs) of the NZ consistent with long-term ecological stability and social constraints. Most importantly, the plan seeks to develop unique recreational opportunities in remote areas.

The NZ of New York consists of 3 major deer ranges, each comprised of several DMUs (Figure 1). The Central range includes the core area of the Adirondacks and the Tug Hill Plateau. Some State lands in this range were designated as Forest Preserve by an amendment to the State Constitution in 1890 prohibiting forest management practices on these lands. Legislation passed in 1972 regulates the use of private land within the Forest Preserve area, further limiting forest management practices that could enhance deer habitat. These regulations have had a marked impact on land-use and vegetation characteristics. The combined factors over time have resulted in a low human density and limited road access. DEC has determined that deer populations within this range cannot be controlled by hunting, although the area is well-suited for recreational hunting. Innovative approaches might be used to maximize recreational opportunities.

The Transitional range surrounds the Central range and consists of fairly accessible, heavily forested, and predominately private lands where deer can be controlled more readily by hunting. In this range DEC believes appropriate

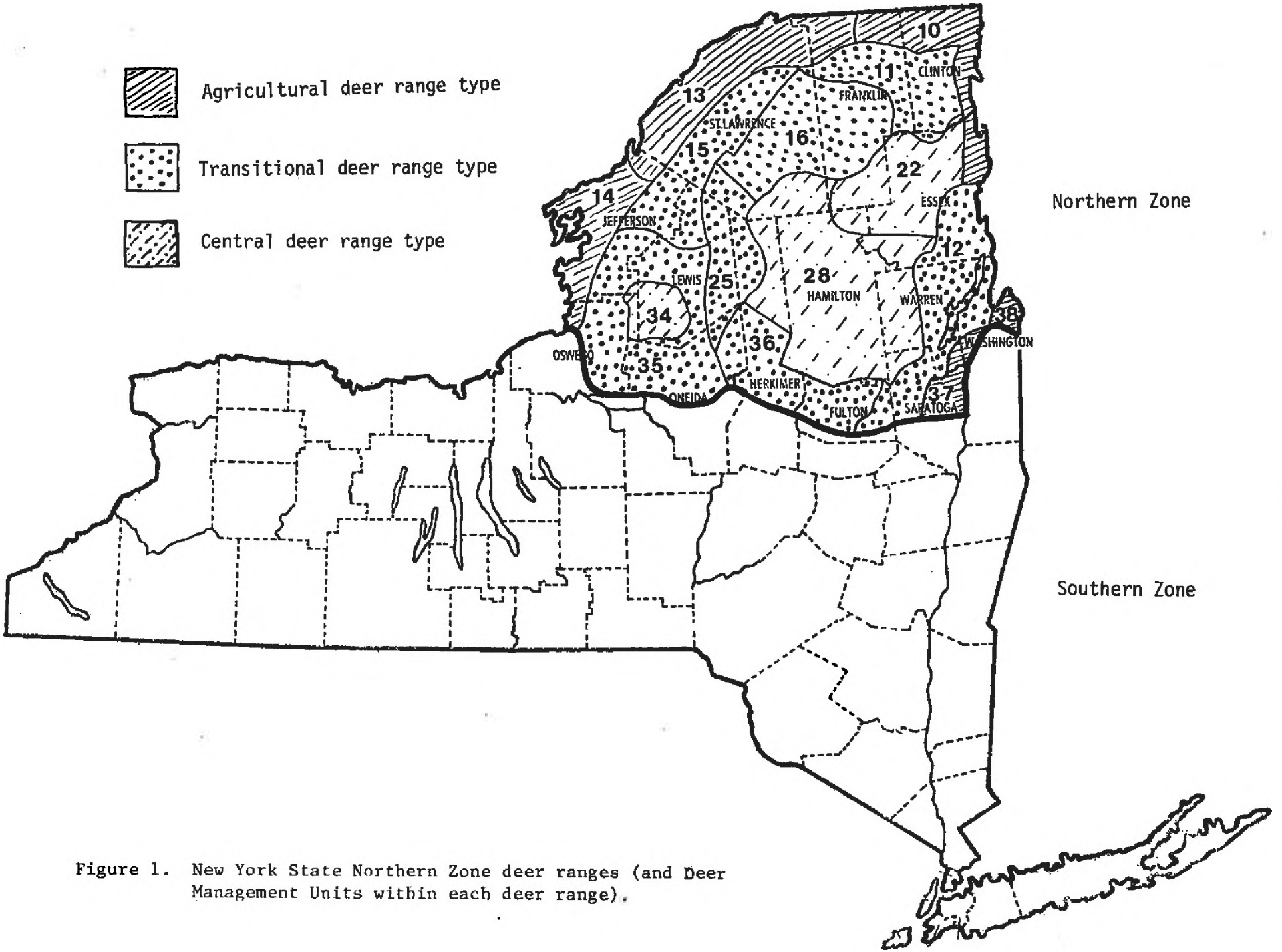

Figure 1. New York State Northern Zone deer ranges (and Deer Management Units within each deer range).

deer management could include approaches that would serve to meet recreational needs of people, biological needs of deer, and prevent undue damage to private property by deer. Any management program for this range must take into consideration the need to regulate numbers of deer taken to ensure that overharvests of female deer do not occur.

The Agricultural range surrounds the first 2 and consists of rolling farmland, including the Ontario-St. Lawrence and Lake Champlain lowlands. Deer populations in this range are already being controlled by mortality factors other than legal hunting, such as illegal deer kill, motor vehicles, and dogs. DEC believes that management strategies here must take into account the need for deer population growth in some localities, while others should be managed to keep a constant population level.

Although potentially effective deer management programs are developed in the plan, history shows that public acceptance and support are essential for program implementation and success. This is particularly true in the NZ where socio-political constraints have severely limited the Bureau of Wildlife's ability to manage deer; e.g., the harvest of antlerless deer has been restricted by legislation spawned by public pressure. One of the subgoals of the plan is to generate continued public and governmental support for sound deer management programs in each DMU in the NZ.

That such support does not yet exist was highlighted by the first study in this series (Decker et al. 1983, Smolka et al. 1983), which determined the acceptability among NZ deer hunters of authorizing DEC to use various deer harvest approaches in the NZ, including the harvest of antlerless deer in some areas. The results of the study indicated that: (1) the majority of hunters would be neither in full support nor full opposition to the plan, but the

potential existed for converting a certain proportion of those not in extreme opposition to a supportive position; and (2) this conversion would depend upon the success of a communication program aimed first at demonstrating a responsiveness to hunters' concerns and then at establishing DEC's deer management credibility in the NZ. The logic of this conversion approach was that after these prerequisites were met, the atmosphere for acceptance of DEC management authority might improve to the point that a trial of antlerless deer harvest authority within specific DMUs would be possible. Then, management competency could be demonstrated, opening the door for further expansion of deer management authority.

Study Purpose

Deer management in the NZ has many dimensions. Recreational hunting may have an economic impact on some NZ communities. Also, conflicts exist between sportsmen's groups and others over the prohibition of deer habitat management activities and access restrictions on public land within the Forest Preserve. Furthermore, deer are having a negative influence on forest regeneration in some areas. Finally, the influence of deer management extends beyond recreational hunting because deer are a part of the native wildlife that attract nonhunting recreationists to the region and add to the nonconsumptive experiences of residents and visitors alike (the importance of the deer resource to nonhunting recreationists is being investigated in the third study in the series). It is within this social, economic, and political milieu that deer management initiatives must be debated and acted upon. Of particular importance are the opinions of the various organizations having interest in the deer resource and the economic well-being of the region.

Following preliminary meetings and communications with Bureau staff, we were asked to develop a mail survey questionnaire that would provide information on the attitudes toward deer and deer management held by leaders or officials of organizations representing a breadth of interest in deer management in the NZ. More specific study objectives were as follows:

(1) to identify background information on the organizations' interest in and beliefs about deer;

(2) to identify which organizations would support/oppose changes in DEC's NZ deer management policy and the reasons for support/opposition;

(3) to identify the channels of communication used by organizations.

More detail was sought in this study compared to the study of NZ deer hunters in 2 areas: (1) opinions about deer population conditions in each deer range, including opinions about the use of antlerless deer harvests in those ranges, and (2) the identification and evaluation of channels through which organizations receive deer management information and the identification and perceived effectiveness of channels organizations use to communicate to DEC their opinions about the DEC's deer management efforts. This new information was sought to add definition to a planned communication program for each deer range and to identify the channels through which a program should be conducted and from which feedback might be expected.

METHODS

Sample Selection

The list of organizations to be surveyed was generated by Bureau of Wildlife (DEC) and Project 146 staff. The main criterion for selection was that the organizations have an interest in deer management in the NZ of New York. Leaders of organizations for which interest was not certain were contacted by telephone to verify interest; organizations with little or no interest, in the opinion of their leaders, were deleted from the list. After screening, 409 organizations were selected for inclusion in the study. Each organization was placed into 1 of 20 categories based upon common functions, purposes, or other important characteristics (Figure 2).

Questionnaires were sent to individuals holding elected or appointed positions within the organizations. More than 1 representative per organization was surveyed when a wide range of opinions from a specific organization was desired and typically involved contacting several local or regional chapters, offices, or affiliates of parent organizations. In such instances, an attempt was made to select organizational sub-units that were geographically distributed throughout the NZ and particularly the 3 deer ranges.

Questionnaire Design and Implementation

Specific data needs associated with the study objectives were identified and defined by DEC and Project 146 staff. Appropriate questions from the survey of NZ deer hunters were included in this survey both to collect relevant data and for comparative purposes.

ORGANIZATION CATEGORIES

1 NZ agricultural groups

2 NYS agricultural groups

3 NZ timber companies

4 NYS, NZ forestry boards, associations, etc.

5 NZ newspapers

6 NZ radio stations

7 NYS, NZ sports writers and magazines

8 NZ business representatives

9 NZ civic groups

10 NZ town supervisors and county supervisors/legislators

11 NZ state legislators

12 NZ private conservation groups

13 National, NYS private conservation groups

14 NZ regional planning boards, councils

15 NZ SCS, ASCS offices

16 NYS public agencies

17 NZ Sportsmen Training Program county coordinators

18 NYS sportsmen's groups

19 NZ sportsmen's clubs

20 NYS Conservation Council, NZ county federations of sportsmen's clubs

Figure 2. Organization categories.

Our standard mailing procedure which uses 4 mailings permitting up to 3 follow-up contacts with nonrespondents was followed; the questionnaire and cover/reminder letters can be found in Appendices A and B, respectively. The mailing chronology was as follows:

- 27 July 1984 - cover letter and questionnaire;
- 2 August 1984 - reminder letter to nonrespondents;
- 24 August 1984 - cover letter and questionnaire to nonrespondents;
- 6 September 1984 - reminder letter to nonrespondents.

Survey Response

The initial sample size of 409 resulted in 287 returned questionnaires, for an overall response rate of 70.2 percent. Of these, 280 were returned codeable, producing a 68.5 percent usable return. The response rate by organization category can be found in Table D-1.[1]

A screening question ascertaining the level of the organization's interest in deer was included to identify any organizations with insufficient interest that were not contacted in the telephone screening because their interest had been presumed; data from leaders whose organization had no interest in deer were excluded from analysis. Also, questionnaires received from organization leaders who either did not know the level of their organizations' interest in deer or did not answer this question were reviewed and a determination of the existence of adequate interest was made based on the nature of responses to

[1]Tables or figures preceded by a letter refer to tables or figures in the appendix (which are contained in a separate volume) designated by that letter.

other questions. As a result of these procedures, 17 organizations (6.1 percent of the usable returns) were excluded from analysis.

Wildlife Management Communication Planning Model

A wildlife management communication planning model has been developed to outline the process an agency might follow to determine public opinions about a proposed management program (Smolka and Decker 1985, included in Appendix E). This information can then be used to develop a communication strategy first for treating opposition to the proposal, if such exists, and second for generating continued public support for the program once it has been accepted. This model is a refinement of the communication strategy developed from the study of NZ deer hunters. The model (Figure 3) assumes that public opinions of a proposed management program are influenced primarily by 2 factors: their beliefs about the management issue(s) and their image of the agency.

Beliefs about a management issue

Often, an agency will propose a management program to resolve a perceived problem (e.g., deer damage in agricultural areas; an underpopulation of bears in a particular range), typically specifying 1 or more management techniques that the agency anticipates will best solve the problem (e.g., establishing a deer management permit system; closing the bear hunting season). Sometimes there is nearly unanimous support for the program among key publics. Frequently, however, there is substantial opposition, resulting in the emergence of a management issue.

Two categories of beliefs that key publics may hold about such an issue should be identified by an agency prior to proposing a program. First, the

WILDLIFE MANAGEMENT COMMUNICATION PLANNING MODEL

DETERMINATION OF PUBLIC OPINIONS ABOUT A MANAGEMENT PROGRAM

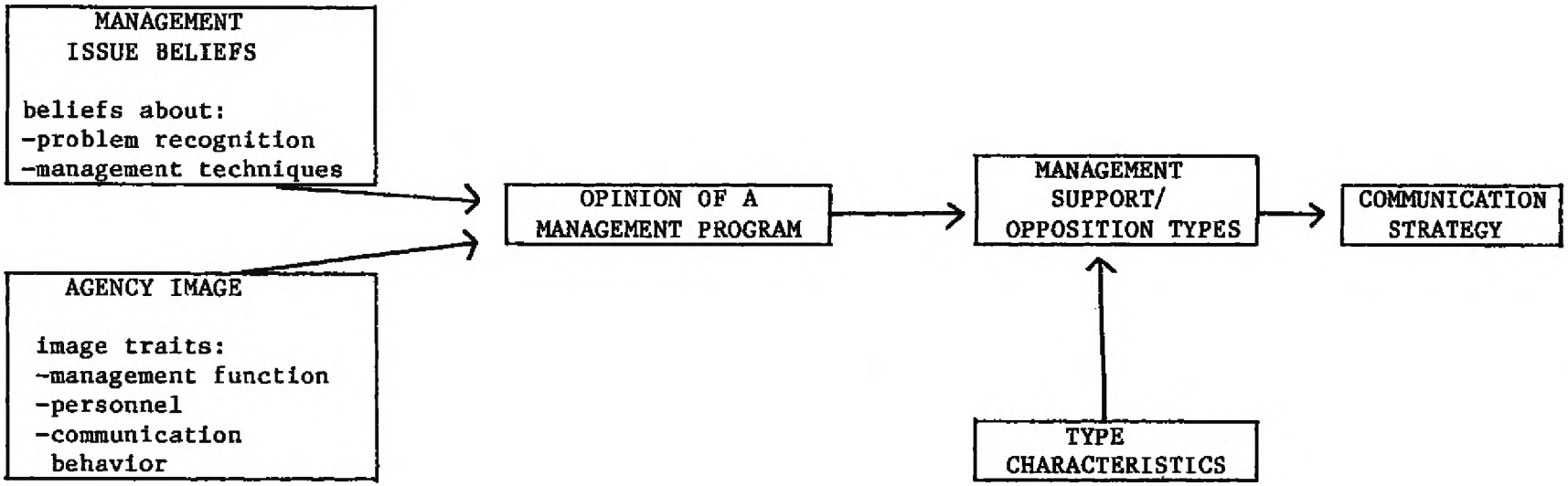

Figure 3. Wildlife management communication planning model.

agency should determine whether the existence of the problem is perceived accurately by key publics (e.g., deer are vs. are not viewed as an agricultural problem; the bear population is vs. is not thought to be below carrying capacity). This is important because public support for a management program to alleviate a problem must be preceded by public perception of the problem. The agency should endeavor to create problem recognition when it does not exist and reinforce recognition when it does.

Second, the agency should determine whether those who recognize the problem support or oppose the management technique proposed by the agency to solve the problem (e.g., a deer management permit system is vs. is not considered the best technique to control deer damage; season closure is vs. is not viewed as the best technique to increase the bear population). The next step in gaining public approval for the proposed management program would be to create support for the management technique when it does not exist and reinforce support when it does.

To provide insight on management issue beliefs of concern in the 3 deer ranges of the NZ, organization leaders answered a set of generic questions pertaining to such issues. The first question in the set inquired whether the respondent recognized the existence of the deer population or habitat problem in that area: an underpopulation of deer in agricultural areas (representing the Agricultural range), the occurrence of habitat and commercial forest damage caused by overbrowsing in easy access, privately owned forested areas (representing the Transitional range), and an underutilized deer population in remote areas such as the central Adirondacks and Tug Hill Plateau (representing the Central range). The second question in the set, answered by respondents who recognized the existence of a problem, solicited their beliefs about the

appropriateness of antlerless deer harvests as a management technique for treating the problem.[2]

Although descriptions of an area (e.g., its geography, land use, ownership and access patterns, vegetative cover type) are intended to reflect the characteristics of a particular range, some characteristics exist to a certain extent throughout the NZ. For example, although the Agricultural range consists mainly of agricultural areas, parts of the other 2 ranges (particularly the Transitional range) also contain areas that can be characterized as agricultural. Therefore, it is possible that some issue beliefs about, e.g., agricultural areas and assumed to represent beliefs about the Agricultural range were actually made by leaders thinking of agricultural areas in a different range.

Also, it is unlikely that a problem occurs throughout an entire area; e.g., there are probably agricultural areas where the deer population is adequate. Given the probability that the beliefs of at least some leaders are based on their experiences in such areas, the level of problem recognition reported for a range may be an underestimate, with greater recognition likely in places where the problem is most pronounced.

Agency image

Agency image is the second factor influencing public opinion of a proposed management program. Whereas the publics' management issue beliefs reflect their beliefs about specific components of the proposed management program, the

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[2]Because of the situation in the Agricultural range, respondents were asked whether antlerless deer harvests should be used to control the level of any agricultural damage that might occur once the deer population had increased.

publics' image of the agency creates the broader context in which opinions of the management program are formulated. It may be difficult to gain approval for a management program until a favorable agency image is established. Decker (1985) states that agency image consists of 3 traits: (1) image of the agency's management function, (2) image of the agency's personnel, and (3) image of the agency's public communication behavior. In this study, organization leaders responded to several standard statements (i.e., used in several studies previously) regarding their image of these 3 aspects of the DEC's NZ deer management program.

Opinions of a proposed management program

Leaders' probable support for any proposed management program can be derived from their issue beliefs and agency image. However, this becomes complicated when opinions are based upon more than 1 set of issue beliefs. When this occurs, a more direct way to determine opinions about a proposed program is to seek opinions of themes that encompass all issue beliefs or agency image components. Two such themes were identified and explored in this study: (1) opinions of the appropriate level of DEC deer management authority throughout the NZ, which are heavily influenced by the public's image of the DEC, and (2) opinions of the use of antlerless deer harvests in the NZ, the management technique common to each issue.

Opinions of the agency's proposed management program will usually cover the range from full support to full opposition. It is important to differentiate various levels of support so that communication can be developed accordingly. Levels of support for DEC's stance on the proposed deer management program in the NZ were created through the use of a Management

Acceptance Typology. This analysis method places organizations into a typology group, or type, based upon their leaders' responses to 3 hierarchically-ordered questions involving opinions of the 2 themes identified in the previous paragraph (Figure 4).

Four levels of support for the proposed program were identified conceptually, hence 4 types were created.[3] (See Table C-1 for a matrix that matches each type with the appropriate responses to the 3 hierarchically-ordered questions.) Ninety-three percent of the organizations were typed. The Full and Conditional Support types would extend to DEC greater deer management authority in the NZ; the Full Support type would approve of antlerless deer harvests in the NZ, while the Conditional Support type would approve of such harvests only under certain conditions. The Qualified Opposition type would oppose either extending to DEC further deer management authority in general or the use of antlerless deer harvests in the NZ specifically; however, a leader in this type was not opposed to both. The Full Opposition type would oppose both the general expansion of authority and the specific use of antlerless deer harvests.

Information regarding characteristics of each type that will be needed for developing communication messages will vary depending on the management program being considered, but should at least include: (1) basic wildlife attitudes, values, and interests, (2) suggestions from those not in full support of the agency regarding conditions under which their support could be

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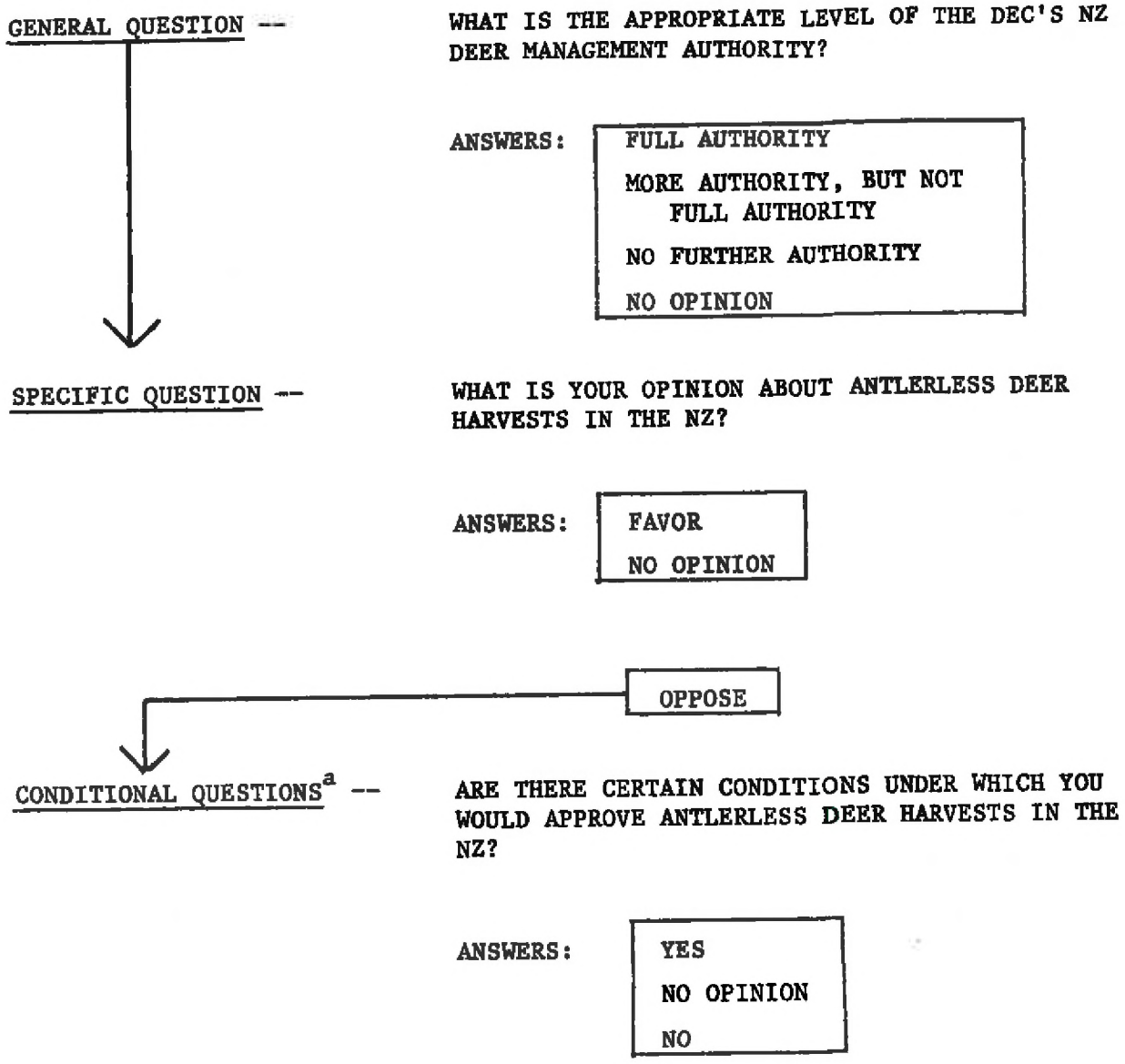
[3]The labels for the 4 typology groups identified in this study are the same as the labels used in Decker et al. (1983) and Smolka et al. (1983). Although the criteria used to assign respondents to typology groups differ somewhat between this and those 2 studies, the conceptual foundation was maintained.



[a]Only those respondents who answered "Oppose" to the Specific Question above were asked to answer the Conditional Question.

Figure 4. Flow chart of questions used to create the Management Acceptance Typology.

expected, and (3) channels for communicating with and obtaining feedback from the public.

Changing public opinions (or the opinions of a typology group) of the proposed management program will necessitate developing public issue beliefs consistent with those underlying the program and/or improving the public's image of the agency. If the existence of a management problem is not recognized by the public, an educational program will be required to inform the public that the problem exists. If the problem is recognized by the public but the management technique is opposed, an educational program will be needed to convince the public of the viability of the technique; educational communication also will be needed to reinforce beliefs about the existence of the problem. If the problem is recognized and the management technique is favored, the emphasis will be on communication that reinforces both of these issue beliefs. Likewise, an agency image component must be improved if it is poor and reinforced if it is good. In many instances, the act of communicating with the public regarding issue beliefs, if done well, will improve components of agency image at the same time.

Report Format

The presentation of results will begin with a discussion of the issue beliefs, agency image, and opinions of the management program themes of organization leaders, thus identifying the kinds and magnitudes of the problems to be addressed in each deer range and in the NZ generally. Following this, type characteristics will be presented and then used to suggest a communication strategy for creating and sustaining support for DEC's proposed NZ deer management program.

Except for illustrative purposes, data for individual organization categories will not be discussed because addressing such a large number of categories would make the report tedious and there is the possibility that general relationships between variables may be obscured by such detail. However, information about the opinions and other characteristics of organization categories can be gleaned from the complete data listing for each category that appears in Appendix D. This will be particularly useful for identifying communication channels that may be unique to an organization category. The location in Appendix D of a table portraying a variable broken down by organization category will be listed in a footnote indicated by an asterisk (*) on the text table or on the appendix table that (with a few exceptions) breaks down that variable by the Management Acceptance Typology.

It will not be possible to report data for organizations operating in each range because no more than 15 percent of the organizations were active exclusively within any 1 range.

The appendices are contained in a separate volume.

Limitations on Generalizability of Study Results

It is recognized by the authors and should be kept in mind by the reader that due to the nature of the sample selection process the results of this study are not generalizable beyond the survey audience. We did not inventory every organization within each organization category in the NZ to create a population from which a random sample could be drawn. Instead, data were desired from specific organizations and the results of the study, in the form of either data, conclusions, hypotheses, or recommendations, apply only to

those organizations that responded to the questionnaire and were included in the Management Acceptance Typology.

RESULTS

Description of the Northern Zone Deer Management Situation

Issue beliefs

The data indicate that beliefs about the existence of a problem and the appropriateness of antlerless deer harvests in a particular range vary considerable between ranges (Table 1). Nearly 3/4 of the organization leaders believed that the deer population in some parts of the Agricultural range should be allowed to increase (i.e., they recognized the problem). If the population grew sufficiently large to warrant herd control, about 1/2 would favor antlerless deer harvests to effect control (i.e., favor the management technique). On the other hand, over 3/4 of respondents did not believe that overbrowsing by deer was a problem in the Transitional range. Beliefs concerning the potential for the deer herd in the Central range to provide more hunting opportunities were more evenly divided, with slightly less than 3/5 believing that the herd could be managed to provide such opportunities. Those who concurred with DEC's premise were slightly more likely to not favor vs. favor the use of antlerless deer harvests as a way to increase opportunities. It is interesting to note that very few leaders who recognized the existence of a problem had no opinion of the use of antlerless deer harvests to deal with it, indicating the saliency of the antlerless deer harvest controversy.

Agency image

Organization leaders' perceptions of DEC's management function and personnel were more positive than negative, although sizeable proportions have not formed an image of these 2 traits (Table 2). On the other hand, their

TABLE 1. ORGANIZATION LEADERS' ISSUE BELIEFS, BY DEER RANGES.

Issue Beliefs	Agricultural Range	Transitional Range	Central Range
	Percent		
Do not believe problem exists	15.3	57.9	20.2
Do not know whether problem exists	11.9	20.4	22.6
Believe problem exists; oppose technique	24.3	2.5	28.4
Believe problem exists; no opinion of technique	2.6	1.7	4.1
Believe problem exists; favor technique	45.9	17.5	24.7
Total: Percent	100.0	100.0	100.0
Number	235	240	243

TABLE 2. ORGANIZATION LEADERS' IMAGE OF TRAITS PERTAINING TO DEC'S NORTHERN ZONE DEER MANAGEMENT PROGRAM.

Agency Image	Image Traits		
	Management Function	Personel	Communications Behavior
	Percent[a/]		
Positive	51.1	44.7	26.2
Neutral	28.9	35.4	19.2
Negative	20.0	19.9	54.6
Total: Percent	100.0	100.0	100.0
Number	234	241	242

a/ The percentages in the "Positive" column were calculated by summing and then averaging the percentages of respondents who agreed with positively-worded statements (e.g., "Deer management policies of the DEC are biologically sound") and disagreed with negatively-worded statements (e.g., "Many wildlife management decisions made by the DEC disregard the views of local people") for all the statements in Question 16 under each image trait. The percentages in the "Negative" column were calculated by summing and then averaging the percentages of respondents who disagreed with positively-worded statements and agreed with negatively-worded statements. "Neutral" percentages were calculated by summing and then averaging the percentages of respondents who answered "Don't know" to the statements.

perception of DEC's public communication behavior was more negative than positive. The image of this trait may be limiting DEC's achievement of an overall positive image.

Opinions of the management program themes

Organization leaders were evenly divided over the levels of deer management authority they thought DEC wildlife biologists should have in the NZ, with 3/5 believing that this authority should be expanded to some degree (Table 3). Nearly 3/4 favored using antlerless deer harvests in the NZ either unconditionally or in certain situations (Table 4). This substantial, though not overwhelming, degree of support for DEC's proposed management program was reflected by the distribution of organization leaders in the Management Acceptance Typology; slightly more than 1/2 of the leaders were in the Full or Conditional Support types (Table 5).

The majority of the Full Support type believed that DEC should have the authority to use a variety of approaches to deer management in the NZ and the remaining leaders felt that DEC should have more authority than at present but that this authority should be limited. The majority of the Conditional Support type agreed with the latter level of authority while the rest favored the former (Table 6). All of the Full Support type by definition favored antlerless harvests in the NZ and almost all of the Conditional Support type favored such harvests under certain conditions. A variety of combinations of opinions were used to place leaders into the Qualified Opposition type. The most frequent combination, representing nearly 1/2 of this type, were those leaders who did not think DEC should have further management authority but would favor antlerless harvests in the NZ under certain conditions. Most

TABLE 3. ORGANIZATION LEADERS' BELIEFS ABOUT DEC WILDLIFE BIOLOGISTS HAVING THE AUTHORITY TO USE A VARIETY OF APPROACHES TO DEER MANAGEMENT IN THE NORTHERN ZONE.

Beliefs About Appropriate Level of Authority	Percent
Should have authority	30.2
Should have more, but limited, authority	32.3
Should not have more authority	30.2
No opinion	7.3
Total: Percent	100.0
Number	245

*Table D-2 depicts this variable broken down by organization categories.

TABLE 4. ORGANIZATION LEADERS' OPINIONS OF ANTLERLESS DEER HARVESTS IN THE NORTHERN ZONE; AND, FOR THOSE WHO OPPOSE SUCH HARVESTS, WHETHER THERE WOULD BE ANY CONDITIONS OR SITUATIONS WHERE THEY MIGHT APPROVE OF SUCH HARVESTS.

Opinions of Antlerless Deer Harvests in the Northern Zone	Percent
Favor harvests	31.4
No opinion	4.5
Oppose harvests; approve under certain conditions	39.6
Oppose harvests; no opinion about whether approve under certain conditions	1.6
Oppose harvests; approve under no conditions	22.9
Total: Percent	100.0
Number	245

*Table D-3 depicts this variable broken down by organization categories.

TABLE 5. DISTRIBUTION OF ORGANIZATION LEADERS AMONG MANAGEMENT ACCEPTANCE TYPOLOGY TYPES.

Types	Percent
Full Support	26.9
Conditional Support	29.8
Qualified Opposition	24.5
Full Opposition	18.8
Total: Percent	100.0
Number	245

TABLE 6. MANAGEMENT ACCEPTANCE TYPOLOGY MATRIX IDENTIFYING THE PROPORTION OF LEADERS IN EACH TYPE.

Opinions of Antlerless Deer Harvests in the Northern Zone	Beliefs About Appropriate Level of Authority			
	Should Have Authority	Should Have More, But Limited, Authority	Should Not Have More Authority	No Opinion
	Typology Group[a]/Percent[b]			
Favor harvests	FS (62.1)	FS (37.9)	QO (10.0)	QO (8.3)
No opinion	CS (12.3)	CS (2.7)	c	d
Oppose harvests; approve under certain conditions	CS (28.8)	CS (56.2)	QO (46.6)	QO (11.7)
Oppose harvests; no opinion about whether approve harvest under certain conditions	QO (1.7)	QO (1.7)	FO (4.3)	c
Oppose harvests; approve under no conditions	QO (3.3)	QO (16.7)	FO (82.7)	FO (13.0)

[a]FS = Full Support type; CS = Conditional Support type; QO = Qualified Opposition type; FO = Full Opposition type.

[b]Percentages enclosed in parentheses are the percentages of a type that gave that set of responses. All percentages for a type add to 100.0%.

[c]No respondents in this category.

[d]Respondents who answered "No opinion" to both questions were not included in the typology.

of the Full Opposition type also believed that DEC should have no additional authority but were completely opposed to antlerless deer hunting in the NZ.

Type Characteristics

Issue beliefs

The relationship between specific issue beliefs and opinions of the proposed management program can be explored in 2 ways, each providing different insights. First, the issue beliefs of each type can be examined, thereby revealing similarities and differences between types and making trends evident. From this analysis, it will be possible to infer approximately leaders' issue beliefs when their opinions of the proposed program are known.

If the wildlife management communications planning model is valid, issue beliefs should vary for each typology group. Relationships do exist, although they vary somewhat by range. The only relationship common to all ranges is that as the typology goes from Full Support to Full Opposition, the proportion of leaders within a type who recognized the existence of a problem and favored the use of antlerless harvests becomes smaller (Table 7).

The vast majority of leaders of each type recognized that the deer population in the Agricultural range should be allowed to increase. Of those who were knowledgable, the majority of all but the Full Opposition type favored the subsequent use of antlerless deer harvests to control potential overpopulation in this range.

In the Transitional and Central ranges, the proportion of leaders within a type who did not believe the problem identified by DEC for the range exists becomes greater as the typology goes from Full Support to Full Opposition. As a result, opposition to antlerless deer harvests in the Central range was

TABLE 7. ORGANIZATION LEADERS' ISSUE BELIEFS FOR EACH DEER RANGE, BY MANAGEMENT ACCEPTANCE TYPOLOGY.

Deer Range/ Issue Beliefs	Full Support	Conditional Support	Qualified Opposition	Full Opposition
	Percent			
Agricultural range				
Do not believe problem exists	12.9	12.7	25.4	9.3
Do not know whether problem exists	12.9	14.1	8.5	11.6
Believe problem exists; oppose technique	0.0	18.3	23.7	69.7
Believe problem exists; no opinion of technique	0.0	1.4	5.1	4.7
Believe problem exists; favor technique	74.2	53.5	37.3	4.7
Total: Percent	100.0	100.0	100.0	100.0
Number	62	71	59	43
Transitional range				
Do not believe problem exists	30.2	53.5	71.2	86.7
Do not know whether problem exists	28.6	20.5	20.3	8.9
Believe problem exists; oppose technique	0.0	2.7	3.4	4.4
Believe problem exists; no opinion of technique	1.6	4.1	0.0	0.0
Believe problem exists; favor technique	39.6	19.2	5.1	0.0
Total: Percent	100.0	100.0	100.0	100.0
Number	63	73	59	45

*Table D-4 depicts this variable broken down by organization categories.

TABLE 7. (CONTINUED)

Deer Range/ Issue Beliefs	Full Support	Conditional Support	Qualified Opposition	Full Opposition
	Percent			
Central range				
Do not believe problem exists	3.0	15.1	26.7	45.5
Do not know whether problem exists	22.7	19.2	20.0	31.8
Believe problem exists; oppose technique	6.1	42.5	40.0	22.7
Believe problem exists; no opinion of technique	7.6	6.8	0.0	0.0
Believe problem exists; favor technique	60.6	16.4	13.3	0.0
Total: Percent	100.0	100.0	100.0	100.0
Number	66	73	60	44

expressed more frequently by the Conditional Support and Qualified Opposition types than by the Full Opposition type.

The second relationship that should be examined is the proportion of each type with the same issue belief. This is necessary for targeting communication messages to establish or maintain beliefs consistent with the management program proposed by the agency. This also enables approximate predictions of opinions of the proposed program when issue beliefs are known.

For example, the Full Opposition type comprised a small proportion of those who did not believe that a problem existed in the Agricultural range (Table 8). Therefore, communication messages aimed at creating problem recognition in this range will not have to be directed at this type. One revealing trend is that the Conditional Support and Qualified Opposition types together usually comprised large segments of those who either did not believe a problem exists, did not know whether a problem exists, or opposed the management technique. Thus, as was found in the study of NZ deer hunters, successful DEC communication with these 2 types will be vital to establishing support for DEC's deer management program in the NZ.

Agency image

A relationship between agency image and support for the proposed management program is evident in Table 9. For each agency image trait, the proportion of leaders within a type who had positive perceptions of the trait became smaller as the typology went from Full Support to Full Opposition and the opposite was true for those with negative perceptions.

The 2 Support types and the Qualified Opposition type had a more positive than negative perception of the DEC's management function and personnel; the

TABLE 9. ORGANIZATION LEADERS' IMAGE OF TRAITS PERTAINING TO DEC'S NORTHERN ZONE DEER MANAGEMENT PROGRAM, BY MANAGEMENT ACCEPTANCE TYPOLOGY.

Image Traits	Full Support	Conditional Support	Qualified Opposition	Full Opposition
	Percent[a/]			
Management function				
Positive	74.7	53.5	40.7	25.9
Neutral	19.1	30.9	36.8	30.0
Negative	6.2	15.6	22.5	44.1
Total: Percent	100.0	100.0	100.0	100.0
Number	65	68	57	44
Personnel				
Positive	65.6	47.2	33.3	24.0
Neutral	25.8	37.5	46.1	31.8
Negative	8.6	15.3	20.6	44.2
Total: Percent	100.0	100.0	100.0	100.0
Number	66	72	60	43
Communications behavior				
Positive	37.9	27.5	21.7	13.3
Neutral	24.2	21.1	19.2	8.9
Negative	37.9	51.4	59.1	77.8
Total: Percent	100.0	100.0	100.0	100.0
Number	66	71	60	45

[a]See Footnote "a" on Table 2 for an explanation of how the percentages were calculated.

*Table D-5 depicts this variable broken down by organization categories.

Full Opposition type was more negative than positive. DEC's communication behavior, on the other hand, was viewed more negatively than positively by each type, except for the Full Support type which was evenly divided in opinion. All types were slightly less likely to have an opinion of the personnel trait vs. the other 2 traits; generally, the communication behavior trait received the fewest "no opinion" responses. The Qualified Opposition type was more likely than the other types to have no opinion of management function and personnel. The trend in responses to each of the individual statements represented by a trait (Table C-2) was similar to the overall trend for the trait.

The image of the agency did not always coincide with opinions of the management program. For example, NZ timber companies generally were from the support types but held a much less positive image of the DEC (Table D-5). On the other hand, NZ private conservation organizations had a somewhat negative opinion of the proposed management program but had a fairly positive image of the DEC.

Kinds of organizations in each type

The opinions of leaders within an organization category concerning DEC's proposed deer management program in the NZ ran the gamut from being homogeneous (i.e., concentrated within 1 or 2 types) to heterogeneous (i.e., distributed across all types) (Table 10). The number of leaders in the Qualified and Full Opposition types exceeded the number in the Conditional and Full Support types in only 5 of the 20 organization categories. Leaders who approved of the DEC's proposed programming tended to belong to organizations that have a

TABLE 10. ORGANIZATION CATEGORIES (RANKED FROM GREATEST TO LEAST SUPPORT), BY MANAGEMENT ACCEPTANCE TYPOLOGY.

Organization Categories	Full Support	Conditional Support	Qualified Opposition	Full Opposition	Total		
	Percent					Mean[a]	N
National, NYS private conservation groups	71.4	14.3	14.3	0.0	100.0	1.43	7
NYS public agencies	66.7	13.3	20.0	0.0	100.0	1.53	15
NYS, NZ sportsmen's groups	47.4	42.1	10.5	0.0	100.0	1.63	19
NYS, NZ sports writers, magazines	53.8	30.8	7.7	7.7	100.0	1.69	13
NYS, NZ forestry boards, associations	42.9	42.9	14.2	0.0	100.0	1.71	7
NZ radio stations	42.8	28.6	14.3	14.3	100.0	2.00	7
NZ SCS, ASCS offices	35.7	28.6	35.7	0.0	100.0	2.00	14
NZ timber companies	25.0	37.5	25.0	12.5	100.0	2.25	8
NYS agricultural groups	50.0	0.0	25.0	25.0	100.0	2.25	4
NZ Sportsmen Training Program county coordinators	20.0	50.0	10.0	20.0	100.0	2.30	10
NZ regional planning boards, councils	50.0	0.0	16.7	33.3	100.0	2.33	6
NZ agricultural groups	0.0	60.0	40.0	0.0	100.0	2.40	10
NZ business representatives	17.7	35.3	23.5	23.5	100.0	2.53	17
NZ sportsmen's clubs	15.8	36.8	23.7	23.7	100.0	2.55	38
NZ civic groups	0.0	50.0	37.5	12.5	100.0	2.63	8
NYSCC, NZ county federations of sportsmen's clubs	7.6	38.5	30.8	23.1	100.0	2.69	13

[a]The values used to compute mean scores are: 1=Full Support; 2=Conditional Support; 3=Qualified Opposition; 4=Full Opposition.

TABLE 10. (CONTINUED)

Organization Categories	Full Support	Conditional Support	Qualified Opposition	Full Opposition	Total		
	Percent					Mean[a]	N
NZ newspapers	25.0	0.0	50.0	25.0	100.0	2.75	8
NZ private conservation groups	14.3	28.6	14.3	42.8	100.0	2.86	7
NZ town supervisors and county supervisors/legislators	3.4	13.3	40.0	43.3	100.0	3.23	30
NZ state legislators	25.0	0.0	0.0	75.0	100.0	3.23	4

statewide membership or focus, while those who disagreed with the proposals generally represented organizations with a strictly NZ membership or focus.

Interests and activities related to deer

Leaders we surveyed should have been well acquainted with their organizations' interest in and opinions about deer management because between 2/3 and 3/4 of them in each type had been affiliated with their organization for 6 years or longer; leaders in the Full Opposition type had the longest affiliation (Table 11).

The majority of leaders in each type (especially Full Opposition) believed that their organization was very interested in deer (Table 12). (Certain organization categories, such as the SCS-ASCS and radio stations in or near the NZ, expressed little interest in deer [Table D-8]). Interest in deer primarily was related to: recreation (more so for the Conditional Support type and less so for the Full Support type); deer, wildlife, and habitat management; economics (less so for the Full Support type); and a general interest in and appreciation of deer as a part of nature (Table 13).

Leaders were also asked to describe the kinds of activity or programs that their organizations participated in, which perhaps provided the best indication of their interest focus. About 1/4 of the organizations in each type were actively involved in deer, wildlife, and habitat management activities (Table 14). Participation in issues involving deer management policy and legislation was almost as common, though less so for the Qualified Opposition type. The Full Support type was engaged in the exchange of information about deer and deer management, while the Full Opposition type

TABLE 11. LENGTH OF TIME ORGANIZATION LEADERS HAVE BEEN AFFILIATED WITH THEIR ORGANIZATIONS, BY MANAGEMENT ACCEPTANCE TYPOLOGY.

Length of Affiliation	Full Support	Conditional Support	Qualified Opposition	Full Opposition
	Percent			
1-5 years	27.9	30.4	28.6	24.4
6-10 years	34.4	26.1	28.6	31.7
11 + years	37.7	43.5	42.8	43.9
Total: Percent	100.0	100.0	100.0	100.0
Mean	11.3	12.8	11.8	16.1
Number	61	69	56	41

*Table D-7 depicts this variable broken down by organization categories.

TABLE 12. LEVEL OF ORGANIZATIONS' INTEREST IN DEER, BY MANAGEMENT ACCEPTANCE TYPOLOGY.

Interest Level	Full Support	Conditional Support	Qualified Opposition	Full Opposition
	Percent			
Very interested	63.7	57.6	58.3	76.1
Moderately interested	10.6	20.5	25.0	15.2
Slightly interested	22.7	15.1	10.0	8.7
Don't know[a]	1.5	2.7	1.7	0.0
Level of interest not given[a]	1.5	4.1	5.0	0.0
Total: Percent	100.0	100.0	100.0	100.0
Number	66	73	60	46

[a]All questionnaires received from organization leaders who either did not know the level of their organizations' interest in deer or did not answer this question were reviewed and a determination of the existence of adequate interest was made based on responses to other questions.

*Table D-8 depicts this variable broken down by organization categories.

TABLE 13. DESCRIPTION OF ORGANIZATIONS' INTEREST IN DEER, BY MANAGEMENT ACCEPTANCE TYPOLOGY.[a]

Description of Interest in Deer	Full Support	Conditional Support	Qualified Opposition	Full Opposition
	Percent			
Recreation	23.1	50.0	37.9	34.1
Deer, wildlife, and habitat management	30.8	25.0	36.2	34.1
Economic	10.8	22.1	19.0	22.7
General interest in and appreciation of deer as part of nature	12.3	17.6	12.1	11.4
Impact of deer on forest management, agriculture	15.4	13.2	10.3	0.0
As a subject for information exchange	15.4	7.4	6.9	2.3
Deer management issues, policy, legislation	6.2	7.4	3.4	9.1
General conservation, natural resource management, land planning	3.1	4.4	10.3	0.0
None[b]	3.1	0.0	0.0	2.3
Total Number[c]	65	68	58	44

[a]This question was presented in an open answer format (see Question 3 of the questionnaire in Appendix A). It is not the screening question used to determine whether the organization had sufficient interest in deer to be included in the study.

[b]Questionnaires received from organization leaders who stated that their organization had no interest in deer were reviewed and a determination of the existence of adequate interest was made based on responses to other questions.

[c]Sums of percents within categories may exceed 100% due to multiple responses.

*Table D-9 depicts this variable broken down by organization categories.

TABLE 14. DESCRIPTION OF ACTIVITIES, PROGRAMS, OR OTHER EFFORTS ORGANIZATIONS ARE INVOLVED IN THAT WOULD REFLECT THEIR INTEREST IN DEER, BY MANAGEMENT ACCEPTANCE TYPOLOGY.

Description of Activities Reflecting Interest in Deer	Full Support	Conditional Support	Qualified Opposition	Full Opposition
	Percent			
Deer, wildlife, and habitat management	27.1	25.4	22.0	22.9
Deer management issues, policy, legislation	23.7	22.2	10.0	20.0
As a subject for information exchange	28.8	14.3	18.0	5.7
Recreation	13.6	17.5	14.0	25.7
None	11.9	14.3	24.0	8.6
General conservation, natural resource management, land planning	8.5	15.9	12.0	2.9
General interest in and appreciation of deer as part of nature	6.8	14.3	4.0	17.1
Economic	8.5	7.9	6.0	20.0
Impact of deer on forest management, agriculture	6.8	0.0	4.0	0.0
Total Number[a]	59	63	50	35

[a]Sums of percents within categories may exceed 100% due to multiple responses.

*Table D-10 depicts this variable broken down by organization categories.

participated in recreational activities involving deer. About 1/4 of the Qualified Opposition type did not take part in any deer-related activities.

Because of the importance of hunting as a recreation activity and deer management tool, it is useful to know organization leaders' perceptions of the role that deer hunting plays. The majority of all types felt that deer were hunted primarily to provide recreation (Table 15). However, about 1/5 of the Qualified Opposition type thought that the provision of food was the most important reason for hunting. A very significant finding from the standpoint of communication message development is that all organization leaders believed that there was a valid reason to hunt deer.

Beliefs about deer and wildlife

An important characteristic of publics that should be understood is their beliefs about wildlife. Organization leaders responded to a set of statements that covered 3 dimensions of beliefs (for wildlife in general and deer in particular) identified by Purdy et al. (1984): (1) nonconsumptive/noneconomic-use beliefs, (2) consumptive/economic-use beliefs, and (3) problem-tolerance beliefs.

The beliefs of the 4 types were remarkably similar; furthermore, there was little difference between beliefs regarding deer and corresponding beliefs regarding wildlife in general (Table 16). The noneconomic/nonconsumptive dimension was most highly rated, with 85-90 percent of the leaders in each type agreeing or strongly agreeing with these uses of deer and wildlife. The only marked difference between the noneconomic/nonconsumptive beliefs of types was that Full Opposition leaders were more likely and Qualified Opposition leaders less likely to agree strongly that it was important for them to express

TABLE 15. ORGANIZATION LEADERS' OPINION OF THE MOST IMPORTANT REASON WHY DEER ARE HUNTED IN THE NORTHERN ZONE, BY MANAGEMENT ACCEPTANCE TYPOLOGY.

Most Important Reason Why Deer Are Hunted	Full Support	Conditional Support	Qualified Opposition	Full Opposition
	Percent			
For recreaction	73.8	78.3	64.8	70.0
To keep deer in balance with their habitat	16.4	13.0	11.1	15.0
For food	8.2	5.8	18.5	10.0
It's good for local economy	0.0	2.9	5.6	5.0
To reduce problems deer cause people	1.6	0.0	0.0	0.0
There are no valid reasons to hunt deer	0.0	0.0	0.0	0.0
Total: Percent	100.0	100.0	100.0	100.0
Number	61	69	54	40

*Table D-11 depicts this variable broken down by organization categories.

TABLE 16. ORGANIZATION LEADERS' RATINGS OF DIMENSIONS MEASURING THEIR ATTITUDES TOWARD AND VALUES OF DEER AND WILDLIFE, BY MANAGEMENT ACCEPTANCE TYPOLOGY.

Attitude and Value Dimensions[a]	Deer Attitudes and Values				Wildlife Attitudes and Values			
	Full Support	Conditional Support	Qualified Opposition	Full Opposition	Full Support	Conditional Support	Qualified Opposition	Full Opposition
	Percent				Percent			
Nonconsumptive/Non-economic-Use Beliefs								
Strongly agree	47.1	50.4	40.3	47.5	51.7	48.4	42.2	49.9
Agree	39.4	38.0	44.6	39.9	36.8	40.3	42.9	38.7
Neither agree nor disagree	9.4	8.9	9.3	9.6	8.6	9.1	10.5	8.5
Disagree	3.1	1.7	4.8	2.4	1.9	1.5	3.2	2.3
Strongly disagree	1.0	1.0	1.0	0.6	1.0	0.7	1.2	0.6
Total: Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Mean	1.7	1.7	1.8	1.7	1.6	1.7	1.8	1.6
Number	57	64	56	37	58	67	55	39
Consumptive/Economic-Use Beliefs								
Strongly agree	48.9	43.6	41.5	42.0	43.9	39.4	40.6	37.8
Agree	28.2	31.7	33.5	33.6	31.5	33.5	33.0	38.5
Neither agree nor disagree	12.9	11.6	14.3	9.9	13.3	13.2	15.2	12.2
Disagree	5.6	8.2	7.1	9.2	6.9	9.9	6.7	7.4
Strongly disagree	4.4	4.9	3.6	5.3	4.4	4.0	4.5	4.1
Total: Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Mean	1.9	2.0	2.0	2.0	2.0	2.1	2.0	2.0
Number	62	67	56	38	62	68	56	37

[a]Dimension ratings are calculated by summing and then averaging responses to the individual attitude and value statements represented by each dimension. Responses to individual statements can be found in Table C-3.

*Table D-12 depicts "Deer Attitudes and Values" dimensions broken down by organization category. Table D-13 depicts "Wildlife Attitudes and Values" dimensions broken down by organization category.

TABLE 16. (CONTINUED)

Attitude and Value Dimensions[a]	Deer Attitudes and Values				Wildlife Attitudes and Values			
	Full Support	Conditional Support	Qualified Opposition	Full Opposition	Full Support	Conditional Support	Qualified Opposition	Full Opposition
	Percent				Percent			
Problem-Tolerance Beliefs								
Strongly agree	11.9	13.3	13.7	28.7	14.8	10.3	10.3	26.1
Agree	42.3	41.0	48.2	33.3	40.9	43.2	46.6	33.4
Neither agree nor disagree	17.5	17.6	12.5	19.4	15.3	17.6	17.6	18.9
Disagree	23.2	23.3	20.2	13.0	22.4	24.0	20.0	17.1
Strongly disagree	5.1	4.8	5.4	5.6	6.6	4.9	5.5	4.5
Total: Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Mean	2.7	2.7	2.6	2.3	2.7	2.7	2.6	2.4
Number	59	70	56	36	61	68	55	37

opinions about deer and deer management to public officials or to officers of private conservation groups (Table C-3).

The economic/consumptive dimension was almost as highly rated as that just reviewed, with about 3/4 of the leaders in each type agreeing or strongly agreeing with these uses. From 2/3-3/4 of the types agreed or strongly agreed that it was important for them to hunt for recreation, indicating that most organization leaders were also hunters.

Organization leaders demonstrated a high degree of tolerance for problems caused by deer or wildlife; only 19-29 percent of the leaders in each type were not willing to accept such problems. The Full Opposition type was somewhat more tolerant of deer damage or nuisance problems than the other types.

Opinions of deer management in the Southern Zone

The benefit of seeking leaders' opinions of deer management in the Southern Zone (SZ) is that it identifies (either tacitly or explicitly) their feelings toward antlerless deer harvests in an area of the state where the use of such harvests through the Deer Management Permit (DMP) system is a critical component of the management program and much less controversial. This provides an indication of whether those who oppose antlerless deer harvests in the NZ are dissatisfied with the management technique itself or only its application in the NZ.

All types were far more likely to rate the overall success of DEC's current SZ deer program as being excellent or good vs. fair or poor (Table 17), although large portions of the 2 opposition types apparently have had little experience with the SZ program, as over 1/3 of each were unable to give a rating. Leaders who gave the program an excellent or good rating did so

TABLE 17. ORGANIZATION LEADERS' RATINGS OF THE OVERALL SUCCESS OF NEW YORK'S CURRENT SOUTHERN ZONE DEER PROGRAM, BY MANAGEMENT ACCEPTANCE TYPOLOGY.

Rating of Southern Zone Deer Program	Full Support	Conditional Support	Qualified Opposition	Full Opposition
	Percent			
Excellent/Good	65.1	57.6	50.8	47.6
Fair/Poor	12.7	21.9	10.2	16.7
No opinion/Don't know	22.2	20.5	39.0	35.7
Total: Percent	100.0	100.0	100.0	100.0
Number	63	73	59	42

*Table D-16 depicts this variable broken down by organization categories.

DEC management or personnel, primarily complaining that biologists do not spend enough time in the field, fail to solicit public input, or ignore suggestions altogether. Of the Full Support type that commented, about 1/2 saw the need for DEC to educate the public better on a number of topics, including the role of antlerless deer harvests in wildlife management.

In addition to statements made by leaders specifically concerning reasons for program ratings, limits, preconditions, and other comments, other sentiments were expressed more generally. First, several leaders still harbor animosity toward DEC for harvesting 50 deer for research purposes in the Moose River Plains area in 1964; this event continues to be referred to as the "Moose River Plains massacre". Second, many leaders blame the reduction in the deer population in parts of the NZ that occurred in the early 1970's on the accumulated effects of antlerless deer hunting (administered through the party permit system), rather than the combination of an overpopulation of deer relative to their habitat and several consecutive severe winters. For this reason, many leaders who would support reinstating antlerless deer harvests in the NZ stress that such harvests not be implemented via the party permit system, as this system is associated with the population decline. Another criticism of this system raised by leaders was their perception that its use in the SZ has resulted in a land posting problem and they fear that such a problem would occur in the NZ, also.

Communication Channels

As the Northern New York Strategic Plan for Deer Management identified, the vehicle for winning public support for a management proposal is successful communication. Successful communication will depend on the development of

convincing messages, the selection of the proper channels through which these messages should be disseminated, and attention to channels through which public reaction to the messages should be expected. Not only is it essential to understand the communication pathways used by organizations, but it is also important to know how organization leaders communicate personally, thus maximizing the likelihood that messages will be received.

Channels through which organization leaders receive deer management information

Organizations currently receive information about DEC's deer management efforts through a wide variety of channels (Table 23). In fact, nearly every information channel listed in the questionnaire (see question 17a in Appendix A) was used by a majority of organizations in each type.

Although 9 of the 13 channels listed on the questionnaire have DEC as their source, 2 of the 4 channels used by the highest proportion of the Conditional Support, Qualified Opposition, and Full Opposition types have as their source entities other than DEC; i.e., sportsmen's clubs and word-of-mouth information from individuals associated with neither the organization itself nor DEC. (Note that about 2/5 of the organizations in the Conditional Support type and 1/4 of those in each of the Qualified and Full Opposition types were sportsmen's organizations; thus, some portion of the information received "through contact with sportsmen's organizations" very likely comes directly to these groups from DEC.) This is not to imply that leaders exclusively use channels outside of the influence of DEC. Rather, it means that DEC-controlled channels compete with these channels as sources of information. It also suggests that the establishment of good relations with sportsmen's clubs be given high priority because much information seems to filter through them.

TABLE 23. USE BY ORGANIZATIONS OF CHANNELS THROUGH WHICH THEY RECEIVE INFORMATION ABOUT DEC'S DEER MANAGEMENT EFFORTS, BY MANAGEMENT ACCEPTANCE TYPOLOGY.

Channels	Full Support		Conditional Support		Qualified Opposition		Full Opposition	
	%	N	%	N	%	N	%	N
Contact with sportsmen's organizations	75.8	66	87.1	70	87.7	57	97.6	42
DEC's Conservationist	83.1	65	87.1	70	77.6	58	84.1	44
Contact between organization members and DEC representatives	92.2	64	82.6	69	78.0	59	77.3	44
Word-of-mouth information from individuals not associated with the organization or DEC	72.3	65	74.2	66	71.9	57	85.7	42
Telephone, visits with DEC regional staff	81.8	66	63.8	69	59.3	59	71.4	42
Newsletters, direct mailings from DEC	72.3	65	64.7	68	57.6	59	74.4	43
Reports, program plans, policy and position papers from DEC	79.7	64	58.0	69	52.5	59	78.6	42
Other New York State magazines	61.7	60	63.5	63	60.8	51	74.3	35
DEC's Envionment	56.5	62	61.5	65	60.3	58	68.4	38
Letters from DEC regional staff	67.7	65	58.2	67	52.6	57	61.9	42
Contact with legislators or organization's lobbyist	46.7	60	57.1	70	54.2	59	61.4	44
Letters from DEC central office staff	54.7	64	44.1	68	39.7	58	50.0	40
Telephone, visits with DEC central office staff	54.7	64	38.6	70	36.2	58	47.6	42
Other	7.7	65	7.2	69	3.6	56	4.4	45
Mean Number of Channels (excluding "Other" channels)	8.7		8.2		7.7		8.8	

*Table D-27 depicts this variable broken down by organization categories.

The 3 channels of information originating from DEC that were used by the highest proportion of organizations were The Conservationist, contact between organization members and DEC representatives[4], and personal contact (i.e., telephone conversations or face-to-face visits) with DEC regional staff. Newsletters, other direct mailings, reports, program plans, policy and position papers, etc., from DEC were also used quite often. Because contact between organization members and DEC representatives was so pervasive, it is imperative that all DEC staff (including ECO's, forest rangers, technicians, etc.) deliver consistent messages. (This was stressed nearly 10 years ago by Decker [1976] and is equally as important today.)

Organization leaders selected a variety of channels through which they believed their organizations received the most information; no single channel was chosen by more than 1/4 of the leaders in any particular type (Table C-9). In general, though, channels that were deemed to provide the most information by leaders in a type were also used by the greatest proportion of leaders in that type. Likewise, channels that were used by the greatest proportion of leaders in a type also were considered to be among the best sources of information (Table C-10).

Organization leaders varied considerably in their choice of channels through which they would prefer to receive deer management information (Table 24). However, 2 channels were preferred by a substantial proportion, though

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[4]"Contact between organization members and DEC representatives" was intended to refer to contact between organization rank-and-file members and DEC staff other than regional or central office staff (e.g., ECO's, forest rangers, field technicians, etc.). However, it is likely that this was interpreted by respondents as contact between any organization member (including leaders) and any DEC representative (including regional or central office staff).

TABLE 24. CHANNELS THROUGH WHICH ORGANIZATION LEADERS WOULD PREFER THEIR ORGANIZATIONS RECEIVE DEER MANAGEMENT INFORMATION, BY MANAGEMENT ACCEPTANCE TYPOLOGY.

Channels	Full Support	Conditional Support	Qualified Opposition	Full Opposition
	Percent			
Newsletters, direct mailings from DEC	37.9	50.0	46.7	21.9
Reports, program plans, policy and position papers from DEC	31.0	27.4	22.2	15.6
Unspecified contact with DEC regional staff	12.1	11.3	11.1	18.8
Telephone, visits with DEC staff	6.9	11.3	17.8	6.3
Contacts between organization members and DEC representatives	10.3	14.5	8.9	3.1
Letters from DEC staff	17.2	6.5	2.2	12.5
Unspecified contact with DEC central office staff	8.6	3.2	6.7	18.8
Unspecified contact with DEC staff	8.6	4.8	4.4	12.5
DEC's Conservationist	6.9	6.5	6.7	6.3
Contact with sportsmen's organizations	5.2	3.2	8.9	12.5
Telephone, visits with DEC regional staff	8.6	8.1	0.0	3.1
Radio, TV	5.2	3.2	6.7	9.4
Newspaper	5.2	6.5	6.7	3.1
Public meetings, forums, etc.	5.2	3.2	4.4	12.5
Unspecified news media	3.4	3.2	8.9	6.3
Contact with legislators or organization's lobbyist	0.0	8.1	2.2	3.1
Unspecified magazines	3.4	3.2	2.2	3.1
Letters from DEC regional staff	3.4	1.6	4.4	0.0
DEC's Environment	1.7	3.2	4.4	0.0

*Table D-30 depicts this variable broken down by organization categories.

TABLE 24. (CONTINUED)

Channels	Full Support	Conditional Support	Qualified Opposition	Full Opposition
	Percent			
Telephone, visits with DEC central office staff	0.0	3.2	2.2	0.0
Word-of-mouth information from individuals not assoicated with your organization or DEC	0.0	1.6	0.0	3.1
Other New York State magazines	0.0	0.0	2.2	0.0
Other	5.2	1.6	4.4	6.3
Total Number[a]	58	62	45	32

[a]Sums of percents within categories may exceed 100% due to multiple responses (leaders could mention up to 2 preferred channels).

TABLE 26. CHANNELS ORGANIZATION LEADERS WOULD PREFER TO USE TO COMMUNICATE THEIR ORGANIZATIONS' OPINIONS TO DEC, BY MANAGEMENT ACCEPTANCE TYPOLOGY.

Channels	Full Support	Conditional Support	Qualified Opposition	Full Opposition
	Percent			
Telephone, visits with DEC staff	34.1	20.0	16.1	23.8
Letters to DEC staff	29.3	11.1	12.9	14.3
Contact between organization members and DEC representatives	17.1	17.8	22.6	4.8
Public hearings, meetings, or workshops involving DEC	14.6	6.7	25.8	14.3
Newsletters, direct mailings	9.8	26.7	9.7	0.0
Telephone, visits with regional staff	12.2	20.0	3.2	14.3
Contact with sportsmen's organizations	7.3	15.6	9.7	19.0
Unspecified contact with DEC regional staff	7.3	8.9	12.9	14.3
Reports, program plans, policy and position papers, legislative resolutions	14.6	8.9	3.2	9.5
Unspecified contact with DEC staff	12.2	4.4	9.7	0.0
Contact with legislators or organization's lobbyists	4.9	6.7	6.5	9.5
Telephone, visits with DEC central office staff	2.4	6.7	6.5	9.5
Unspecified contact with DEC central office staff	7.3	4.4	3.2	9.5
Letters to DEC regional staff	2.4	6.7	3.2	4.8

*Table D-34 depicts this variable broken down by organization categories.

TABLE 26. (CONTINUED)

Channels	Full Support	Conditional Support	Qualified Opposition	Full Opposition
	Percent			
Newspapers, magazines	2.4	2.2	3.2	4.8
Letters to DEC central office staff	0.0	2.2	0.0	0.0
Word-of-mouth information from individuals not associated with the organization or DEC	0.0	0.0	3.2	0.0
Radio, TV	2.4	0.0	0.0	0.0
Other	2.4	4.4	9.7	9.5
Total Number[a]	41	45	31	21

[a]Sums of percents within categories may exceed 100% due to multiple responses (leaders could mention up to 2 preferred channels).

Communication channels used by organization leaders personally

In addition to their organizational interest in deer, over 1/2 of the Conditional Support and Full Opposition types, nearly 1/2 of the Full Support type, and over 1/3 of the Qualified Opposition type made their personal opinions on deer management known to policymakers at some time in the 2 years prior to our survey (Table 27). The most frequent form of action was contacting a DEC representative or participating in a public meeting involving DEC. The Full Opposition type was more likely than the others to have contacted a state senator, assemblyman, or the governor or to have voted for or against a political candidate primarily because of the candidate's views on deer management issues. Higher proportions of the Conditional Support and Full Opposition types than of the other types reportedly signed a petition relating to a deer management issue. Apparently the Full Opposition type was more likely than the others to take a "political" action to make their opinions on deer management issues known.

Organization leaders overwhelmingly stated that the best way for DEC to make deer management information available to them personally would be through the mail in the form of letters, newsletters, reports, or other publications (Table 28). Other, less preferred channels, such as through the media or personal contact with DEC staff, were also mentioned.

Use of **The Environment** as a channel of information

The use of The Environment as a channel through which organizations can receive NZ deer management information warrants special attention, as this channel has been designated by DEC as a vehicle for dissemination of such information. The majority (between 57% and 68%) of the leaders in each type

TABLE 27. ACTIONS TAKEN BY ORGANIZATION LEADERS IN THE LAST TWO YEARS TO MAKE THEIR PERSONAL OPINIONS ON DEER MANAGEMENT IN NEW YORK KNOWN TO POLICYMAKERS, BY MANAGEMENT ACCEPTANCE TYPOLOGY.

	Full Support	Conditional Support	Qualified Opposition	Full Opposition
	Percent			
Percent That Took Actions	43.8 (n=64)	52.9 (n=70)	36.8 (n=57)	54.8 (n=42)
Actions				
Contacted DEC representatives	75.0	73.0	61.9	73.9
Participated in public meetings involving DEC	60.7	59.5	47.6	60.9
Contacted state senator, assemblyman, or governor	32.1	40.5	42.9	60.9
Signed a petition relating to a deer management issue	10.7	32.4	9.5	26.1
Voted for or against a political candidate primarily because of his/her views on deer management issues	10.7	18.9	19.0	34.8
Donated money to a political lobbying group that supports views	17.9	8.1	14.3	17.4
Wrote letters to the editor to be printed in an area newspaper	14.3	8.1	4.8	13.0
Other	33.3	19.4	19.0	21.7
Total Number[a]	28	37	21	23

[a]Sums of percents within categories may exceed 100% due to multiple responses.

*Table D-35 depicts this variable broken down by organization categories.

TABLE 28. CHANNELS ORGANIZATION LEADERS WOULD LIKE DEC TO USE TO GET INFORMATION TO THEM PERSONALLY ON DEER MANAGEMENT PROGRAMS IN NEW YORK, BY MANAGEMENT ACCEPTANCE TYPOLOGY.

Channels	Full Support	Conditional Support	Qualified Opposition	Full Opposition
	Percent			
Letters, newsletters, reports, publications, etc.	100.0	76.9	88.2	88.6
Magazines, newspapers, other mass media	23.0	18.5	13.7	14.3
Personal contact with DEC staff	21.3	16.9	11.8	14.3
Meetings, forums attended by DEC	14.8	12.3	17.6	5.7
Through other organizations	1.6	1.5	5.9	5.7
Total Number[a]	61	65	51	35

[a]Sums of percents within categories may exceed 100% due to multiple responses.

*Table D-36 depicts this variable broken down by organization categories.

used The Environment, although virtually none believed that his/her organization received the most information through this channel. Most Full and Conditional Support leaders considered it to be a fair or good source of information, but about 1/3 of the 2 Opposition types considered it a poor source. Finally, very few leaders would prefer that their organization receive information through The Environment.

In spite of the fact that a majority of leaders gleaned deer management information from The Environment, only about 1/5 of each type indicated that their organizations actually received it (Table C-13). Nearly all leaders whose organizations did not receive this publication stated that they would like to be placed on the mailing list, indicating that the potential may exist for increasing the communications effectiveness of the publication.

Logistic Regression Model

A stepwise logistic regression modeling procedure was used to analyze the influence of key independent variables on leaders' opinions of the appropriate level of DEC deer management authority throughout the NZ. The key variables entered into the model were: (1) level of organizations' interest in deer; (2) recognition that different ranges exist; (3) recognition of the range situation in each of the deer ranges; (4) each of the 3 agency image traits; and (5) opinions of the use of antlerless deer harvest in the NZ. It was not possible to include opinions of the management option in each of the deer ranges as an independent variable due to the large number of missing cases associated with this question (i.e., those who did not recognize the situation and therefore did not answer this portion of the question).

The model created by this procedure had weak explanatory power. The $\underline{R}$ statistic for the model, which is similar in interpretation to the multiple correlation coefficient in linear regression after being corrected for the number of parameters estimated, is 0.369.

Of the independent variables entered into the model, 3 were identified as being significant ($p \leq 0.05$). The model indicates that a favorable attitude toward allowing the DEC full management authority in the NZ is related to a positive image of the agency's management function, a positive attitude toward the use of antlerless deer harvests in the NZ, but a low level of organization interest in deer. Thus, organizations with a higher interest in current deer management have developed less favorable attitudes toward allowing the DEC full management authority. This in no way implies that creating interest in future deer management among organizations will inevitably lead them to develop negative attitudes toward management authority; rather, those with the greatest interest in deer traditionally apparently have not understood the deer management programs of DEC, either because of their lack of interest in doing so or because DEC was ineffective in communicating their program to the public. The management and personnel image traits were moderately intercorrelated and in such circumstances this modeling procedure will only include the stronger of the 2 variables in the equation; thus, a positive image of personnel also can be thought of as being associated with more favorable attitudes about allowing full management authority.

IMPLICATIONS FOR COMMUNICATION

General Implications

A precondition to support for DEC's proposed NZ management program is recognition that range differences exist. Although DEC has been largely successful in its effort to communicate this, some leaders remain unconvinced. The extent to which this is due to a genuine disbelief that differences exist or the inability to grasp the concept, despite recognizing specific applications of it, is unknown. In many cases, comprehension of the concept may not be essential to program acceptance if recognition of specific examples of differences is present; nevertheless, DEC may wish to continue to pursue this goal.

A communication program to generate public support for DEC deer management proposals in the NZ might include 3 basic objectives: (1) to reinforce issue beliefs that are consistent with DEC's analysis of the situation; (2) to create these beliefs where none exist, and (3) to change issue beliefs that are contrary to DEC's analysis of the situation. The amount of emphasis needed to be placed on each objective, the messages used in the communication program, and the timing of message delivery will vary from range to range and is discussed below. Once DEC has decided that sufficient support for a management action exists, the proposed action, the reasons for the action, and the consequences of the action could be presented to the public, with appropriate program modifications ensuing as a result of feedback from the public.

The public's image of DEC may improve as a result of this effort. The act of communicating should bolster the image of DEC's communication behavior and increase familiarity with, respect for, and confidence in agency personnel; this, in turn, will eventually aid in meeting the above objectives.

An improved image of DEC's management function may also occur, although improvement is more likely to take place after DEC has achieved initial success with its management program. Achieving initial success would establish management credibility more quickly.

Communication Considerations: Agricultural Range

DEC's proposed deer management program could encounter its greatest acceptance in the Agricultural range. Furthermore, public discussions concerning a management action in this range could begin with little more public preparation. Most organization leaders believe that the deer population in some easy access, agricultural areas should be allowed to increase and many would also favor the use of antlerless deer harvests if population control were eventually warranted. Although most leaders desire a population increase there, prior to managing for an increase, DEC may need greater assurance of having public support for the means of eventually controlling the population. Therefore, 2 communication program objectives for this range might be: (1) to establish problem recognition where it does not currently exist, creating support for antlerless deer harvest simultaneously; and (2) to create support for antlerless deer harvest where the problem is recognized but antlerless deer harvest is opposed.

The first step in designing a communication program to meet these objectives would be to determine leaders' reasons for nonrecognition of the problem or opposition to the management technique. There are a few possible explanations for lack of recognition. First, some leaders may not realize that certain parts of the range are underpopulated, necessitating the dissemination of biological information. Second, there may not be an underpopulation of deer

in agricultural areas some leaders are familiar with. Third, some leaders may realize that the deer population is low in certain areas, but not favor an increase in the herd. This desire may be due to a concern about a possible concomitant rise in deer damage. In fact, those who do not know whether the population should be increased are somewhat less tolerant of deer damage than those with other issue beliefs. Three of the five organizations in the NZ Agriculture category (excluding maple producers) that are active wholely or partly in the Agricultural range either oppose or do not know whether the deer population in this range should be increased.

Those who do not recognize the problem might be receptive to messages stressing the amenity values resulting from a larger deer herd, based on their positive nonextractive/noneconomic-use beliefs. In addition, the potential for increased hunting opportunities could be mentioned, as these leaders also have positive extractive/economic-use beliefs.

Those who think that the deer population in the Agricultural range should be increased but oppose the use of antlerless deer harvests if herd control were needed would deny DEC an effective means of control. One-half of the leaders with this issue belief are in the Full Opposition type and thus may be reacting out of objection toward the idea of antlerless deer harvests in the NZ, noting that this objection is not expressed toward such harvests in the SZ. The other 2 types expressing this issue belief are Conditional Support and Qualified Opposition. Many of these leaders are willing to accept antlerless deer harvests in cases of overpopulation and therefore their beliefs may be more malleable. Nevertheless, these leaders should understand that the concerns of other organizations (e.g., agriculture) have to be addressed before management actions can be taken to increase the population.

Communication Considerations: Transitional Range

DEC's proposed deer management program may be furthest from realization in the Transitional range, given the preponderance of leaders who do not believe that the deer population in some easy access, privately owned forested areas is damaging habitat and commercial forest regeneration because of heavy browsing. An objective of the communication program for this range would be to establish problem recognition. There is little sense in trying to create positive opinions toward the use of antlerless deer harvests to control habitat and commercial forest destruction in the Transitional range before such damage is recognized. In fact, it is impossible to predict what opinions of the use of such harvests will be if recognition is established. If problem recognition is created, opinions of the management technique should be solicited from the public again.

There are several possible reasons why leaders do not recognize habitat and forest damage. First, leaders may not realize that it is occurring because they lack either information about the problem or the technical expertise to discern damage; educational communications would be required in this case. Another possibility is that leaders do not perceive the damage they do know about as being significant. That this is possible is evidenced by the fact that DEC has guided many people on field trips to witness damage done in winter yarding areas with apparently little success in creating widespread problem recognition. A further possibility is that damage is not occurring in the area with which leaders are familiar. The exact reasons for nonrecognition of the problem must be determined before a communication program can be developed.

A possible solution is to gain the assistance of respected and knowledgable members of the local public who recognize damage and are willing to communicate this to others. Large proportions of a few potentially influential organization categories recognize damage and favor antlerless deer harvests to control it. Nearly all of the organizations in the New York State Forestry Boards and Associations category recognize the problem, as do nearly 1/2 of the organizations in the NZ Timber Companies category. Gaining the cooperation of a timber company would have 2 benefits: the existence of an outside spokesman in favor of DEC's program and the possibility of using some portion of the timber company's landholding as a demonstration area to prove the viability of antlerless deer harvest.

Two considerations should be kept in mind if DEC decides to use demonstration areas. First, more than 1 demonstration area should be employed, if possible, to increase the overall probability that success results in at least 1 area. Second, every effort should be made to avoid a public relations controversy such as occurred over the Moose River Plains deer collection. This would entail public relations preparation prior to the demonstration and attention to public opinion during and after the operation so that adverse opinion could be dealt with in a timely and effective manner.

Communication Considerations: Central Range

Issue beliefs for the Central range differ from those existing in the other 2 ranges. The slight majority of leaders who recognize that the deer population in some remote areas such as the central Adirondacks and Tug Hill Plateau has the potential to provide more hunting opportunities should be increased before management actions are taken in this range. Then, DEC

could begin to generate support for the management technique, which is currently about evenly divided.

Success in reaching the first objective will depend on DEC determining leaders' (primarily Conditional Support and the Opposition Types) reasons for their beliefs and then addressing these reasons. DEC should continue to publicize their contention that hunting opportunities are now being missed and, if possible, attempt to increase the effectiveness of their messages.

After problem recognition is established, creating support for the use of antlerless deer harvests to provide increased opportunities would be the next objective. Although beliefs about this use are currently divided, it is possible that once the Conditional Support and 2 Opposition types recognize the problem, their beliefs regarding the management technique (i.e., antlerless deer harvest) may be fairly negative. This conclusion is based on the assumption that their beliefs about this technique will be distributed between support and opposition approximately as they are now among those in these types who currently recognize the problem.

Fortunately, the relationship between problem recognition and opinion of the management technique for issue beliefs in the Agricultural and Transitional ranges differs from the relationship between these 2 issue belief components in the Central range. Dealing with the problem (i.e., overpopulation of deer) in the former ranges is dependent on the use of antlerless deer harvests to achieve population control. In the Central range, where population control is not essential, management techniques that are more acceptable to the public than antlerless deer harvest could be considered. Following implementation of these techniques and the achievement and communication of success in their use, DEC's credibility might improve to the point where trials of antlerless deer harvests would be acceptable.

Selection of Communication Channels

The goal in selecting channels to communicate with organizations is to decrease the number of channels used in series (i.e., many steps from initial dissemination of message to reaching organization leader) and increase the number used in parallel (i.e., many channels used simultaneously and reach organization leader directly). One major exception to this rule of thumb should be the dissemination of information through sportswriters, as these writers seem to be supportive of new management initiates for the NZ.

A few criteria might be applied when selecting channels through which information should be sent to leaders. First, channels that are currently being used by leaders and are highly evaluated (e.g., contact with sportsmen's organizations, The Conservationist, contact between organization members and DEC representatives) should be given the highest priority. As second choices, preferred channels should be selected, with efforts made to improve those given poor evaluations. Finally, channels that are used by organizations but evaluated poorly could be considered last choices if improvements were made.

A final consideration is that messages are most successful when delivered through the appropriate channel. For example, communication intended to change beliefs is more effective when delivered in a personal context, while messages to reinforce existing beliefs can be disseminated through DEC publications, the media, etc.

Factors Affecting Involvement in Northern Zone Deer Management Issues

Thus far, the opinions of organization leaders have been given equal consideration in the data analysis. However, the saliency of NZ deer management issues varies for each organization category, affecting the degree

to which organizations will actively support or oppose a new deer management initiative. A rough measure of saliency is the level of organizations' interest in deer as reported by leaders. The SCS-ASCS category, for example, expressed little interest in deer (Table D-8); therefore, active support or opposition from this category can be expected to be nominal. On the other hand, many of the organizations expressing the strongest opposition to DEC, such as sportsmen's groups and governmental officials, were very interested in deer and may take an active role in debates regarding expansion of DEC deer management authority.

Another factor affecting involvement, mentioned earlier, is that some leaders who approve of DEC's proposed deer management program have a statewide membership or focus while those who disagree with proposals generally represent organizations that have a NZ membership or focus. It is likely that organizations tied closely to the NZ will be willing and able to mobilize more local support for or opposition to DEC than organizations with a statewide following. For example, given the concept of "home rule" it is doubtful that sportsmen's groups operating at the state level would attempt to influence public opinion as much as sportsmen's groups active in the NZ specifically.

Even within the NZ, the amount of influence wielded by an organization may vary. Agricultural groups might have influence in agricultural areas, timber producers and forest associations might have influence in areas with large tracts of privately owned forestland, business interests may likely become involved in areas visited by nonresident hunters, etc.

A final organization characteristic that may help determine influence is the potential advocacy role of the organization. Although the New York State legislators representing the NZ were quite hostile to DEC's proposed management

plans, their support or opposition reflects their perception of their constituents' support or opposition; change public opinion and the opinion of legislators may change accordingly. Much the same can be said of the NZ news media, although these organizations do have a legitimate editorial role in addition to their responsibility of reporting the news.

CONCLUSIONS

Deer management initiatives in the NZ are most likely to be conducted either at the DMU level or, in the case of demonstration areas, at the sub-DMU level. Issue beliefs are such that the objectives and appropriate messages of a communication program to gain and maintain support for these initiatives will vary according to the range location of the DMU or sub-DMU area being considered. The extent of the communication challenge, while apparently less imposing in the Agricultural range than in the Transitional range, indicates the need for expert communication program planning, implementation, and monitoring.

A common thread connecting the various elements of the communication program is the need to establish a positive agency image. A note of optimism can be sounded in that a more positive than negative image of DEC's management function and personnel is held by leaders not totally opposed to the proposed deer management program. On the other hand, DEC will have to put forth a concerted effort to improve the public's image of its communication behavior.

Although a favorable agency image may make organization leaders more amenable to approving management initiatives, particularly the least controversial ones, there is no substitute for demonstrating actual program success. Gaining approval for a management technique in an area may hinge on prior establishment of management competence, either by successfully using the technique in other areas of the NZ or by successfully implementing other techniques in the same area. The combination of creating a positive agency image and demonstrating management competency should result in greater acceptability of a general expansion of DEC's NZ deer management authority.

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